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THE DUBLIN
QUARTERLY JOURNAL
OF
MEDICAL SCIENCE.

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THE DUBLIN

QUARTERLY JOURNAL

OF

MEDICAL SCIENCE;

CONSISTING OF

ORIGINAL COMMUNICATIONS,

REVIEWS, RETROSPECTS, AND REPORTS,

INCLUDING THE

LATEST DISCOVERIES IN MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES.

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MEDICAL SCIENCE.

FEBRUARY 1, 1854.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Observations on the Treatment of Diabetes Mellitus.* By SIR HENRY MARSH, Bart.

DROPSY should have been the subject matter of the following paper. The further consideration of the causes of dropsy I am compelled to postpone. In the next Number of this Journal I hope to resume this interesting subject. I was unable, from a variety of interrupting causes, to put together as I would wish the facts and observations which, in so expanded a field of inquiry, are necessary to show the true nature and causes of obstructive dropsy. A few pages of this Number of the Journal I shall occupy with scattered practical remarks, derived from the *disjecta membra* of lectures formerly delivered at Steevens' Hospital, on diabetes mellitus. Many years have passed since I published in the Dublin Hospital Reports a treatise on this subject. Since that time I have had numerous opportunities of testing the various modes of treatment which have from time to time been recommended. Of these, many on trial have been found wanting, and have been consigned to oblivion. Others, however, are of a totally different character, and hold a deservedly elevated rank amongst the really valuable modes of treating this disease. Great praise is, I think, due to M.

Bouchardat, Professor of Hygiene to the Faculty of Medicine of Paris, for his able researches. How far they may in theory be true it is not my purpose now to inquire. On chemical analysis his practical results are based. It is one of the many instances in which the application of chemical science has greatly contributed to the advancement of the practice of medicine; perhaps in no forms of morbid action more prominently than in those involving functional derangement of the kidneys. Experience, and that, too, in a wide and varied range of cases, convinces me that the labours of M. Bouchardat have done much towards rendering diabetes mellitus more submissive to remedies.

The first great step towards a curative treatment of this fatal disease was made by Dr. Rollo: to him are we indebted for an exclusively animal diet as a therapeutic agent. The change wrought in the quantity and quality of the urine, by an abstinence from all save animal food, cannot fail to be appreciated by even the most careless observer. In early life I submitted this mode of treatment to the test of strict observation. Few, very few indeed, could be prevailed upon to adhere to a diet so restricted. When adhered to for a few days a very remarkable change was observed. The urine, though not considerably altered in density, was greatly diminished in quantity, and lost nearly altogether its saccharine quality. To the majority, the diet, exclusively animal, became insupportable; I have heard some say that death would be far preferable to such a regimen[a]. It must be remembered, too, that an inordinate appetite is not an *uniform* symptom. I have met with cases in which the appetite was below, not, as generally happens, above the standard of health. In some instances, though at first there was a voracious craving for food, yet after a time this symptom had in a great measure subsided, and animal food, except in moderate quantity, caused epigastric distention, oppression, tenderness, and other signs of indigestion. When the appetite is impaired, it frequently happens that the stomach revolts from, and refuses to digest, animal food. To such cases Dr. Rollo's treatment is absolutely inapplicable. Still, the manifest improvement in the condition of the urine, resulting from Dr.

[a] Four shipwrecked Russian sailors were cast on a barren shore in a high northern latitude: there they remained for four years; during that time they never tasted vegetable food,—they lived exclusively on flesh and fish laboriously acquired. There is, however, a vast difference between the stomach of a healthy man and that of one labouring under diabetes. I may here add, that fish, in moderation, and eggs constitute an excellent addition to the bill of fare of the diabetic patient.

Rollo's discovery, renders it a valuable and important item in the general dietetic management of this most intractable disease. As an adjunct to the whole system of treatment, the judicious adaptation of animal food is in no small degree conducive to the wished-for result. It is, however, a great improvement, that a considerable variety of vegetables may be superadded, and thus, though in suitable cases the diet may be chiefly animal, yet, mixed with vegetables such as do not aggravate the disease, the loathing which food exclusively animal produces may be perfectly obviated. Another advantage also arises from the admixture of vegetable matters: it aids in preventing the obstinate constipation which so frequently in this disease prevails. When the aqueous fluids are superabundantly excreted by the kidneys, the fæces become dry, hard, and difficult of expulsion, so that constipation, a most troublesome symptom, is undoubtedly aggravated by a diet purely animal. Often have I observed, in cases of ordinary dyspepsia, that the bowels of patients restricted in diet to bread and meat become obstinately constipated; daily aperients were required. On the addition of well-cooked vegetables to the daily food, the aperients, after some days, became no longer necessary.

To the diabetic patient those vegetables, such as cabbage, celery, salads, &c., which do not abound in starch and sugar, may be advantageously granted. The potato I have found to disagree more than any other vegetable. Carrots, turnips, beet-root, parsnip, and other sugary vegetables, should be strictly prohibited. With regard to bread, so necessary an article of daily food, there is a difficulty. It has been in a great measure surmounted,—excellently good bread can be made with flour from which the starch has been extracted and washed away. The gluten-bread, well cooked, is unobjectionable, and constitutes a valuable addition to the varied list of articles admissible in the treatment of saccharine diabetes. Where gluten-bread cannot be procured, hard biscuit thoroughly baked, and bread cut thin and well toasted, constitute the best, but an imperfect substitute. When the appetite is inordinate and the digestion rapid, the admixture of oleaginous substances, such as oil, butter, cream, and fat, with vegetable matters, is especially suitable, and adds much to the palatableness of the food. Ale and all malt liquors are inadmissible; so are milks in all their varieties. This restriction need not, however, be extended to curd and cheese, nor, as already stated, to cream. All drinks containing sugar and the vegetable acids, should be prohibited; the mineral acids, and al-

cohol sufficiently diluted, may be permitted, and light, bitter infusions, as those of chamomile, bitter orange, hops, quassia, &c.; also tea and coffee without sugar. No pains should, however, be taken to render drink palatable, inasmuch as there is no point of more vital importance than that of limiting to the utmost possible degree the amount of fluid taken daily into the stomach. This I have found the sorest trial to which the diabetic patient can be subjected; yet it is one to which, if he hopes for a cure, he must submit. It is a curious and interesting fact, that if the patient resolutely endure the torture of thirst for a week or ten days, contented with moistening the mouth continuously, or inhaling the vapour of hot water, or chewing some hard material, the urgency of the thirst abates and the struggle ceases. Creasote too possesses, in some cases, the property of mitigating and even allaying thirst: this effect I have known it to produce; and Dr. Neligan has furnished me with the particulars of a case of saccharine diabetes, in the treatment of which two drops, gradually increased to five, proved, for a time at least, in this respect very beneficial. Thus a most important step towards the cure of the disease is made. It is scarcely necessary to add, that it requires much determination on the part of the physician, and still more on the part of the patient, to bring about this desirable end. If the rule be broken, the more the patient drinks, the more the dryness of the mouth and the ardent thirst will increase.

In the few instances in which I have been permitted to make a post-mortem examination the great dilatation of the stomach and distention of its vessels have been especially notable. If there were no other reason,—none of a chemical nature and character,—this constitutes a strong one for not, in the treatment, adding to the existing distention.

The distention of the stomach is favoured by the enormous ingurgitation of liquids by, and also the extreme voracity of, some patients. In a few hospital cases I have seen the craving desire for both solids and liquids rise to even a disgusting height: offal and the foulest drinks being, despite all remonstrance, copiously and furtively swallowed. The treatment of diabetes mellitus will not succeed if reliance be placed exclusively on dietetic remedies; other co-operating means should be employed in order to attain an end so difficult of accomplishment. One of the most valuable is the excitation of cutaneous excretion. The importance of this means in controlling the symptoms was many years since urged in the treatise which I published on the subject. Experience has, I think, fully borne me out in the utility of the treatment there strongly re-

commended. In several cases which I have treated I have found the marked advantage of maintaining not a profuse, but a continuous and augmented cutaneous excretion. Within the scope of this observation I do not include those exceptional cases in which the disease, protracted and intense, has so undermined the constitution, and infringed upon the vital powers, as to leave no reasonable hope of arresting its fatal progress. Nor do I include those in which, owing to the waywardness or obstinacy of the patient, or to inevitable disturbing causes, mental or corporeal, all treatment is spoiled; nor those in which a formidable superadded disease foreshows the impending doom. There are many maladies, some curable, some incurable, with which diabetes is apt to be complicated. It is quite a mistake to imagine that its symptoms are uniform and uncomplicated. It is far otherwise; often on this very account the treatment must be, in many points, modified and adapted.

Occasionally—happily not often—one encounters a case of this malady so intensely, even from the starting-point, acute as to render all remedial appliances ineffectual. Generally, the disease is gradual in its formation, and gradual in its growth; months may often elapse ere it reduce the patient to utter hopelessness. Time is afforded for treatment, for systematic treatment, capable, as I now believe, either of converting an acute case into a chronic, or in chronic cases of removing every symptom of the disease. It cannot, however, be too often repeated, that in the accomplishment of the object no single remedy is to be relied upon. The combined operation of many agencies is as necessary to the treatment of this as it is to a very large class of other diseases. Amongst the co-operating agencies, the full and well-maintained action of the skin stands prominently forward. As a general rule, I would observe, that any mode of operating on the skin which issues in a depression of the vital powers must needs be pernicious. Hence it happens that amongst the means of softening the skin, and enforcing moderate transpiration, muscular exercises, daily augmented, and warm clothing, are superior to all other. It may be well to remark that, in some cases, such is the languor, such the sinking, such the debility (referred especially to the knees), and such the feeling of hopelessness and despondency, that the first efforts at muscular exercise are in the highest degree irksome; the patient deems such efforts impracticable. Yet, it is wonderful (the primary *vis inertiæ* having been overcome), with what rapidity the muscles advance in the power of increasing action, and the good thence resulting establishes in the patient's mind the efficacy of the remedy. The poor

man I have, I may say, compelled to work with his spade, at first but a little each day, and then more and more, till at length he is enabled to execute a good day's work, and to walk over progressively increasing distances. The rich, in the same progressive manner, to ride on horseback, to walk, to play at rackets, at billiards, to fence, varying and augmenting the daily amount of muscular exercise. In all cases amenable to treatment, muscular exercise, judiciously regulated, and fully carried into effect by the patient, aids materially in promoting the ultimate cure. The tepid bath, at 96° or 98° Fahrenheit, repeated daily, or on alternate days, softens the skin, and promotes the freedom of its action. In severe cases the patient being, as it were, hide-bound, the skin arid and unyielding, the cuticle thick; then it is that the vapour-bath (so applied both as to heat and duration that it shall not debilitate) is singularly efficacious as a first step in relaxing the skin. This once effected, muscular exercises will maintain a moderately perspiring state. The object is thus far better attained than by internal diaphoretics. There are, however, instances in which diaphoretics are useful in causing the skin primarily to relax. In reference to the various modes of exciting diaphoresis, I would direct the attention of the reader to my treatise already referred to. There, in the zeal of juvenile authorship, I put this treatment forward as in some instances effecting a cure. Since then I have had many opportunities of testing the value of the cutaneous treatment, not as a cure, but as an efficient auxiliary: I would not now, in any case, place exclusive reliance upon it.

Furthermore, I have seen two cases of diabetes mellitus well marked, in which the pores of the skin were spontaneously opened, and in one case the diaphoresis was profuse. These are exceptions to a general rule, and even in these instances the diaphoresis was secondary, and not primary[a]. It did not take place till long after the disease had been fully established, and was accompanied by a marked mitigation of the distressing symptoms, neither were the thirst nor the dryness of the mouth so urgent as in the more usual cases of this malady. The internal medicine which, when the difficulty of producing diaphoresis is extreme, I have found most useful is a combination of Dover's and James' powders. In this the most efficient ingredient is opium; very remarkable indeed is the influence which opium exercises over the symptoms of diabetes. By it the quantity excreted from the kidneys is diminished, the urine

[a] In cases complicated with phthisis, the sweating is caused by the tubercular disease of the lungs.

is rendered less saccharine. Though it does control the symptoms, yet in no instance have I found it permanently to ameliorate the condition of the patient. I have seen, years ago, the opium treatment long persisted in, and the successive doses increased to an almost incredible amount, and yet nothing gained beyond a temporary mitigation of the more urgent symptoms. If long persisted in, its effects are pernicious, and the moment it is withdrawn every essential symptom reappears. It seems for a time to stem the torrent, but has not the power permanently to obstruct the overflow. I have often been amazed at the hugeness of the doses of opium which have been with apparent impunity administered. Strong indeed must be the morbid action in the system which, in like manner as agonizing pain, is capable of neutralizing the largest doses of this poison,—doses which to one in health and unhabituated would prove rapidly fatal. Intense morbid action or pain is capable of effecting that impunity, rapidly and at once, which it would require months of habituation to bring about in a healthy individual. The largeness of the dose of a narcotic poison which may safely be borne becomes in some degree a measure of the intensity of the morbid action. Advantage may be taken of the singular effects of opium in controlling the symptoms of diabetes in the incipient stage of the treatment,—in the effort to convert an acute case into a chronic. It is in such cases that I have found a few doses of opium singularly beneficial in pioneering the way to other and more efficient treatment. It will frequently suspend the virulence of the symptoms.

If there be no irritability of the stomach, the combination of Dover's and James' powders already alluded to, I have, as a first step in the treatment, found eminently beneficial. If the stomach be disturbed by this combination, the watery extract of opium, repeated in a suitable dose every fourth or sixth hour, will, without causing nausea, produce analogous effects. The preference is, however, to be given to the powders, on account of their well-known diaphoretic properties. The dose should be repeated every four hours.

Amongst the agents capable of controlling the saccharine diathesis may be enumerated the alkalies. Of these, that which I have found the most useful is a combination of lime water, ammonia, and soda, given about an hour after each meal. Years ago I met the late Dr. Colles in consultation. The case was a severe one of diabetes; I asked him what he would propose to give. He replied, lime water and hartshorn. I asked him on what principle he proposed the remedy? His answer was: "I know nothing about the principle, but I know the fact, that it

does more good than any other medicine." And so it did in the case we consulted about. I state the answer in his own words because it was so characteristic of that eminent man whose departure from amongst us we have all had such reason to deplore. In the observation, memory, and application of facts he greatly excelled.

I well remember the time when reiterated and large bleedings were in vogue as a specific in this disease. I have seen several cases treated on this, the Sangrado system, and, as far as my observation has reached, with no other result than that of hurrying the disease onward with accelerated velocity. The first, and even the second bleeding, wore an encouraging aspect; they were well borne and seemed to do good; every successive bleeding was followed by an aggravation of the symptoms. It is a mode of treatment which, from my observation of its results, I should in the strongest terms deprecate.

Yet it should not be argued from this statement that in the treatment of diabetes bleeding in any shape or form should never be resorted to. I have seen it most useful when fever from any cause has been kindled up, and when an inflammatory disease has been superinduced. I saw a patient labouring under severe diabetes die of intense inflammation of the larynx and epiglottis, accompanied by ardent fever. He should, in my opinion, have been bled from the arm, and leeches applied to the upper part of the neck. There is no good reason to fear moderate and not too often repeated bleeding. I have seen much benefit derived from cupping and leeching at the epigastrium in cases of diabetes, when the tenderness on pressure, the distention, and sometimes pain, were indicative of unusual turgescence of the vessels of the stomach. Vain and unprofitable would be the task to enumerate the endless variety of specifics with which the periodical press has teemed: no specific has as yet been discovered, and it is probable there never will. There is, however, one medicine, viz., the phosphate of iron, which has been strongly recommended, and which I have seen fully tested. From its action on the system I expected much: the result, though given in the fullest doses and long persisted in, has been disappointment. It appeared to create feverishness, and to augment the dryness of the skin and tongue; but there is undoubtedly in this disease often a marked tendency to fever, and, in its early stages, to inflammatory invasions. Neither has the cod-liver oil, which has been perseveringly given in two hospital cases, been followed by any better success. It seems, nevertheless, a suitable remedy, and merits further trial. In the present state of our

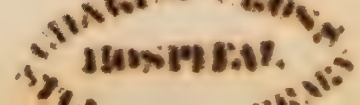
knowledge I would say, that a combined, co-operating, systematic treatment is that which affords the fairest prospect of combating this refractory malady.

I have seen more than one case terminate abruptly in a sudden attack of vomiting. When the stomach, as the phrase is, gives way, it is generally a symptom of evil omen.

Some years ago I saw a gentleman, in his forty-fifth year, who came to Dublin labouring under the disease in a very severe form. About two years previous to my having seen him he had been thrown heavily from his phaeton, and severely hurt in the lower part of the spine[a]. The result of the injury sustained necessitated many weeks' confinement to his couch. About three months after the accident he became first aware of an increased flow of urine. Disturbance during the night, unusual with him, first aroused his attention. His appetite improved, yet he lost flesh. At the time of the injury he weighed 19½ stone; when I saw him, he was reduced to 12 stone. He was emaciated to the last degree; so feeble that, unable to ascend, he was borne in a chair up the stairs of the hotel. The sensation of extreme feebleness was referred to the knees; the skin arid, and, as it were, glued to the subjacent parts; insatiable thirst; failing appetite; peculiar and unmistakable fetor of breath; swollen and ulcerated gums; dark red and somewhat coated tongue; pulse permanently quickened, tense, and wiry; diuresis profuse, not less than twenty pounds in the twenty-four hours, sp. gr. 1044, highly saccharine. Strange to say, the true nature of the disease had not been recognised. I have been surprised at the number of cases I have seen which have undergone a variety of treatment, the real malady having all the while been undetected. Some cases are certainly obscure; the majority, however, are, I may say, at a glance recognisable. A few days after the arrival of this gentleman in town he was seized with vomiting; he vomited large quantities of liquid matters. This vomiting continued, with but brief intermissions, for about thirty hours, when, utterly exhausted, he expired,—his life cut short by an attack of that peculiar form of gastritis which in this disease is apt to arise.

Some time since I was requested to see a gentleman who had been suddenly seized with a vomiting. The attack occurred during the night, he having, according to his own account, eaten something which had disagreed with him.

[a] In some cases the starting-point of diabetes has been, I think, fairly traceable to spinal injuries.



The quantity of dark liquid matter ejected was very copious. Temporary relief ensued after each paroxysm of vomiting; rapidly, however, the fluids were reproduced, and the severe fits of vomiting recurred.

The peculiar and painful expression of his countenance can never be effaced from my memory; an expression neither to be described nor forgotten: it implied not a hope of recovery. The calmness and composure of the sufferer added poignancy to the wasted, haggard visage, the deeply purpled cheeks, the sunken, hollow, blood-streaked, and all but motionless eyeballs. For some hours before death, as if from muscular inability, the vomiting ceased. This gentleman had been for nearly four years previously labouring under the saccharine diabetes. A strict regimen had been enjoined by his medical advisers in London, amongst whom was the late esteemed, intellectually exalted, and truly scientific Dr. Prout. Long and rigorously he had adhered to the rules prescribed, and whilst he did so there was an abatement, even a subsidence, of all the most urgent symptoms. Feeling himself in every way improved, in an evil hour he broke loose from all restrictions, ate and drank as though he were in perfect health. Soon the diabetic symptoms reappeared. Many days had not elapsed till the gastric attack abruptly snapped the thread of life. His age was about 50. No cause could be assigned capable of affording a satisfactory clue to the origin of the disease to which he fell a victim. There was really very little of morbid change to attract attention. The thoracic viscera were all perfectly sound. The stomach was capacious, dark, its vessels congested and turgid. The liver pale, not structurally altered; the kidneys soft, and considerably swollen, enlarged, and highly congested. It is worthy of observation in this case, that the body exhibited no signs of emaciation. On the contrary, beneath the integuments of the abdomen, a layer of fat, an inch and a half in thickness, was found. There were considerable deposits of fat around the heart and kidneys. The body not being emaciated, is in itself a proof to what an extent treatment steadily adhered to is capable of subduing the disease. Had he not departed from the rules prescribed, the probability is, the disease would have been kept in abeyance, and the fatal catastrophe averted.

The leading facts of a case of great interest I shall give in as few words as possible. A lady, aged 22, low in stature, marked delicacy of fabric, who resided many miles from the city, consulted me some years ago on account of a circumscribed and painful œdema, extending from the knee to the ankle of the left leg. There was no superficial redness. The swelling was

considerable, and pitted deeply on strong pressure; it was painful and tender; there was slight accompanying fever. It was a well-marked instance of infra-cutaneous serous inflammation, illustrative of that form of inflammatory dropsy which it is my intention hereafter to describe. The inflammation extended over a large space; its margins were well defined. It presented all the characters, save redness, of a large patch of circumscribed erysipelas. It yielded, after about six days, to the following treatment, viz., perfect rest, mild antiphlogistic measures, and the water-dressing carefully applied. Many months elapsed ere I again saw her. She was then again affected with a precisely similar circumscribed œdema.

I was led (I scarcely know why) to make inquiry about the renal excretion. There was no palpable emaciation, no great amount of thirst, no increase of appetite; in short, no symptom which could lead one to suspect saccharine diabetes. She was a remarkably timid and retiring young person; I experienced many difficulties in acquiring a knowledge of the facts of her case. On examining a portion of her urine, I was distressed on finding the specific gravity 1043, and that it abounded in sugar. The urine was frequently afterwards examined, and uniformly with the same results. After having ascertained the existence of this formidable disease, it so happened that I did not again for several weeks see this patient. When next I saw her she was in bed. The day previously she had driven into town, having eaten, at an unusually early hour, a meat dinner. She did not appear ailing while in the carriage; she took a long drive. On her return home she was seized with violent vomiting, and fainted several times. At the end of eight days she died. Never have I witnessed a more entire prostration of strength. The countenance pallid and sunken; the pulse at the wrist barely perceptible; the heart's impulse feeble in the extreme, its action irregular, intermitting, and disturbed. Nothing containing alcohol was retained on the stomach; even a teaspoonful of brandy largely diluted seemed to kindle up an internal flame, and was quickly discharged. The only article of nutriment which remained on the stomach for any length of time was asses' milk. Copious fluid vomitings recurred every four, five, or six hours. Whatever she had previously swallowed was then, with a large additional quantity of fluid, ejected. The epigastrium was swelled and tender; pressure caused a disposition to vomit. That which most distressed her was the depression—the vast depression—of the vital powers, with a constant sensation of faintness and sinking. There was also a feeling of weight and

oppression she could not shake off. These unceasing sensations rendered her situation pitiable; she dozed restlessly and often, but only for a few minutes. The restlessness and inquietude which preceded each fit of vomiting were painful to witness. On my first seeing her in bed, I perceived that the impression of death was clearly stamped upon her. Such was a painful and well-marked instance of the peculiar form of gastritis which sometimes abruptly terminates the existence of the diabetic patient.

Mr. F., a widower, aged 60, about seven years previous to his consulting me had a severe attack of scarlatina, from which he thinks he never fully recovered. His health and spirits are broken down by grief, from domestic affliction; has lost flesh, complains of intense thirst; tongue dry, and coated with brown fur; *appetite bad;* bowels constipated; perspires after exercise; cannot, however, walk much without causing cramps in legs; pulse 116, strong and regular; urine passed frequently, and in large quantities; sp. gr. 1033, highly saccharine. He was placed on anti-diabetic diet, and directed to drink small quantities of lime water and infusion of bitter orange, when the thirst was urgent; as an aperient, a dessert-spoonful of vinum rhei, in solution of magnesia; a teaspoonful of aromatic spirit of ammonia, in three ounces of Carrara water, three times a day; to use a Sitz bath every night, at 94° or 96°, for ten minutes. At first he was much relieved by treatment. Ten days before his death he was attacked with vomiting, which continued, at short and irregular intervals, until dissolution.

Mr. —— aged 64, till about five months before I saw him, was a healthy, active man. A diarrhœa, which lasted some time, had reduced him much; now complains of urgent thirst, especially after meals; mouth clammy; tongue yellow; pulse 76; appetite moderate; passes between two and three quarts of urine in the twenty-four hours.

October 16th. Specific gravity of urine, 1030. Treatment: anti-diabetic diet; carbonate of ammonia in pill, and lime water.

November 31st. Feels himself much better; the urine from two or three quarts in the twenty-four hours reduced to two pints. The density of the urine 1024, and not a trace of sugar. This case was a good example of the value of treatment perseveringly adhered to.

Miss M——. Urine almost colourless, without urinary or other odour; viscid to the touch; very slight acid reaction. Specific gravity, temperature Fahrenheit, 51°, 1048. On boiling it with water of caustic potash, the urine assumed a fine

claret colour, proving that it contained sugar. The examination of the blood gave the following results:—

Specific gravity at 60° Fahrenheit,	1049
Proportion of serum in 524.5 parts of blood,	251.5
Of clot in the same,	273
Specific gravity of serum at 60° Fahrenheit,	1027

The proportions were taken eight hours after venesection, when the supernatant portion of serum was very clear; but the lower part contained a considerable number of red particles, and the clot was black and very soft. Under a magnifying power of 600 the serum was seen thickly crowded with globules, about one half of which were perfect red particles; a few red particles, with irregular edges, were also to be seen, whilst the remainder consisted of spherical globules, of the exact size of the nucleus of a red particle.

Esther Reilly, aged 40, of spare habit, married, states that about eighteen months ago, during lactation, caught a severe cold by sitting for some time on wet grass. The mammary secretion was suppressed, and her health began to fail. Soon afterwards she observed the quantity of urine increased, until it amounted, as she says, to ten quarts in the twenty-four hours, accompanied by intolerable thirst, and great debility. At present she passes about five or six quarts of saccharine urine in the twenty-four hours: sp. gr. 1040. She complains of weakness, palpitations, thirst, and burning heat of skin. Tongue clean, but dry and tender; appetite good, but not excessive; bowels habitually constipated; pulse, 88; respirations, 15. Bled to five ounces.

Temperature of Ward,	48° F.
Of hand (moist),	95
Of axilla,	95
Under tongue,	95
Of blood (moderate stream),	95
Specific gravity of blood at 74°,	1055

Coagulation commenced in about two minutes, and was tolerably perfect at the end of forty minutes.

Proportion of serum in 526 parts of blood,	224
Of clot in same,	302
Specific gravity of serum, at 55°,	1030.6

The proportions were taken ten hours after venesection, when the serum was of usual appearance, and the clot was dark, soluble, and deficient in firmness.

Of twenty cases of diabetes the density of the urine was

above 1040; in nine, the highest specific gravity, 1053; the lowest, 1023. In four cases albumen was present; in one case oxalate of lime; and in three, lithic acid crystals. In two of the cases the blood was examined, and the relative specific gravity of the blood and urine was as follows:—

Miss M.—Sp. gr. of urine, ...	1048, 51° F.
„ „ of blood, ...	1049, 60
Esther Reilly.—Sp. gr. of urine, . . .	1043, 48
„ „ of blood, ...	1055, 74

Some years ago I saw a lady about seventy years of age, who had been long affected with diabetes mellitus, carried off suddenly by gangrene of the foot and leg She complained of coldness in the left limb. A small livid spot on the external side of the great toe caught my eye. On further investigation, I found that all pulsation in that limb had ceased. The pulsation in the right groin was strong—in the left, wholly absent; the artery was totally obstructed. I met in consultation the late Dr. Colles; he told me that he had seen two cases of diabetes terminate fatally from obstructed arteries and gangrene. In this case the gangrene extended upwards, but ere it reached the knee the patient died.

I have seen three cases of diabetes terminate in fatal coma. It so happened that in all these cases opium had been long persisted in, and increased to enormous doses. Many also have fallen under my observation which evinced all the signs and character of tubercular phthisis. Its ingress was slow and gradual, as was also its progress. There are, however, cases on record in which the progress of the pulmonary disease has been extremely rapid. When phthisis had fully established itself, the sugar almost wholly disappeared from the urine. The new morbid action seemed in great measure to supersede the old, just as a diarrhœa will for a time arrest the diabetes. I remember having attended a remarkable case of alternating bowel and kidney affection. It occurred in a gentleman between 40 and 50, who had led a most intemperate and dissipated life. He evinced every sign, in an intense degree, of diabetes, a disease with which he had for a considerable time been affected. Gradually he had lost flesh, strength, and spirits; all his merriment and joviality had forsaken him; the virile powers, which he formerly possessed in an eminent degree, were annihilated[a].

[a] This is not an uniform result. I have noted several cases in which the virile feelings and powers were not, till the system was wholly undermined, extinguished.

The interesting point in his case was, that during the course of the illness the overflow of urine would cease for several days; during this time he would pass great quantities of spongy, barm-like, greasy matter from the bowels. It was scarcely a diarrhœa. Twice or thrice daily were the bowels evacuated, but at each evacuation the vessel (a large one) was more than half filled; the matters expelled from the bowels were consistent, semi-solid, never liquid. He was worn down to a perfect skeleton, and died apparently of mere inanition; a mode of death which, though not preceded by acute pain, nevertheless is one of great suffering and distress.

Not long afterwards I attended a very painfully interesting case, in which the symptoms were in some respects similar, though it was not a case of diabetes. It was one in which large quantities of fæces—such as were described in the last case,—loaded with oleaginous and fatty matter, were daily passed from the bowels[a]. Small, semi-transparent masses of oleaginous matters, which ignited readily and gave out a flame, were mixed largely with the fæces, on the surface of which oily particles were floating. No treatment succeeded in staying the progress of this fatally wasting disease. During the whole course of the disease this patient was jaundiced, sometimes deeply, at other times more slightly: at no time was jaundice wholly absent. Doubtless there co-existed with the morbid action of the bowels some form or variety of hepatic disease. The patient, aged 55, was of delicate constitution, deficient in animal spirits and vivacity, and one who had led an extremely sedentary life. An expression of woe and despondency was at all times impressed upon his wan and wasted visage; even in health his friends observed it was a rare sight to see him look cheerful or happy.

In both of the above cases it cannot be doubted but that the liver was involved in morbid action. The more I contemplate the symptoms of diabetes, the more convinced am I that deranged hepatic function plays a most important part amongst the aggregate symptoms. Two cases I have seen in which great hypertrophy of the liver (in one case extending as low as the crest of the ilium) preceded the fatal issue.

A gentleman now in his sixtieth year, who has been, by steady adherence to rules, a long time perfectly exempted from

[a] There are three cases recorded by Dr. Bright, and one by Professor Greene, in which this interesting symptom was connected with malignant disease of the head of the pancreas. It is probable that in this case also the pancreas was diseased.

every diabetic symptom, has had repeated attacks of jaundice from gall-stones. He is now in the enjoyment of wonderfully good health, and is a remarkable example of the value of systematic treatment undeviatingly persevered in. Much, however, as the hepatic functions appear to be deranged, I cannot speak highly of the effects of mercury. An occasional dose of calomel, combined with cathartics, is undoubtedly useful; mercury given with the view of producing specific effects has been in every instance a failure, nay, worse than a failure. The disease itself appears to resist and prevent the constitutional action of the metal. Under circumstances, however, where one would be disposed to give mercury, I have seen a very decided advantage result from the nitro-muriatic acid internally exhibited, and externally as a foot-bath. The very interesting experiments of M. Bernard tend to prove that the function of the liver is at fault as well as that of the stomach; and that diabetes is more a disease of these associated organs than of the kidneys. A curious very general, but not universal incompatibility belongs to many cases of this disease, viz., the coexistence of a voracious appetite and a consuming thirst.

There are a few points of resemblance between diabetes mellitus and purpura or scurvy. They both are characterized by a distinct and peculiar fetor, both by softened, swollen gums, and wasting of the tissues. Here the parallel ceases. I have seen many cases of purpura terminate in asthenic dropsy[a]. This, at least within the range of my experience, has not happened in diabetes; it is neither characterized by the white or red blood hemorrhages. The vast detraction of the thinnest portions of the blood passed through the kidneys would seem to account for this discrepancy. It explains, too, the very high specific gravity of the blood.

If guided only by what has fallen under my own observation, I should say, that the disease is more formidable, acute, and intractable in the young than in those who have passed the meridian of life.

One of the most acute and rapidly fatal cases I have met with was in a girl only sixteen years old. I have seen no case of diabetes at an earlier age. The urine was of very high specific gravity, and the quantity of sugar excreted very large. She emaciated rapidly, and soon sank into the grave. She was of a highly strumous diathesis. In few hospital cases have I been able to trace with any certainty this diathesis,—not so in private practice. I have found in several cases this hereditary

[a] Dr. Watt relates the case of a child only three years old, affected with saccharine diabetes, accompanied by dropsy.

taint, this imperfection of organization, at the root of the evil. Hence it is that diabetes is so often hereditary; such undoubtedly is the fact—it is often traceable to an hereditary source. The imperfection, parentally derived, implanted in the solids, or the blood, or both, which we term struma, or scrofula, shows itself in after-life, not only in the exhibition of the strumous diathesis generally, but also in a tendency or predisposition to disease in some particular organ or organs. As an example, I have observed numerous whole families highly strumous, in not one of whom did scrofulous disease develop itself in the thoracic or abdominal viscera. It limited itself to the cerebro-spinal system in the forms of convulsions, chorea, epilepsy, intense strumous headachs, hysteria, epilepsy, eccentricities and mania, idiotcy, and paralysis, &c. In contemplating a subject so interesting, and yet so obscure, observation teaches us that this taint, the pregnant source of so many maladies, of so much human misery, descends from parent to child, and establishes in one or more organic structures a latent predisposition, which, when exciting or disturbing causes are superadded, determines morbid action to some one system or organ in preference to any other. Thus it would appear to be, that disturbing causes being superadded, an hereditary taint gives rise to this disease, the treatment of which we are discussing. The same exciting causes which give rise to other diseases are capable of kindling up this likewise, especially if there be an hereditary predisposition to it. Thus, it is sometimes clearly referable to long-continued mental anxiety and grief; to severe and protracted abstractions of caloric; and other disturbing causes. There is no great difficulty, in general, in tracing the symptoms back to causes capable of producing this as well as a long list of other diseases and epidemics. The real difficulty consists in finding out what that is which determines morbid action to one particular part in preference to any other. The study of the laws of struma assists in this iniquiry. As we find that such seemingly small things as tones of voice, peculiarities of manner, gesture, colour, identify, as it were, the child with the parent—just so, local imperfections, in subjection to the law of resemblance, are transmitted from parent to offspring.

Mr. G——[a], aged 64, bilious aspect, apt to be depressed in spirits, and to allow small things to rest heavily on his mind: for years he has been, in varying degrees, labouring

[a] In this instance an hereditary predisposition, for two generations, was distinctly traceable. I have heard of instances in which the disease was transferred from parent to child down to the fourth generation.

under saccharine diabetes. At first, profuse diuresis, very high density of urine, unquenchable thirst, progressive emaciation, languor, depression, and overwhelming debility; appetite rather impaired than augmented. These were the characters of a disease apparently soon to terminate life. Yet, upon his adopting fully the whole of the systematic treatment, in a wonderfully short time he rallied. For three years the symptoms have been kept in abeyance. With determined resolution he adheres to the anti-diabetic regimen—takes as large an amount of walking exercise daily as he can accomplish; every succeeding day a warm bath; he stints himself in liquids (now no longer a difficult task); takes constantly the alkalies after meals, and carefully regulates the bowels. The density of the urine is lowered from 1040, and upwards, to 1026; the quantity not in excess. He is now in a great degree his own physician, measures for himself the density of the urine, and knows how to keep the symptoms in check. In his case the transition from impending death to at least comparative health is highly gratifying; and this, notwithstanding the drawback of oft-repeated attacks of acute sciatica, always affecting the nerve of the right limb. This has from time to time interfered with the daily perspiring exercises, and has more or less caused relapse. I state this case, because it exhibits one of the many varieties of accessory disease to which the diabetic patient is liable, and how many difficulties in treatment spring from this source.

Diabetes mellitus obeys the same laws as other diseases, it presents every shade of variety, from the highest degrees of intensity to the mildest forms of deranged function. Even in its mildest forms it demands the immediate adoption of systematic treatment; it is liable, from even slight disturbing causes, to assume a serious and formidable character. Many, without being in the least aware of it, are labouring slightly under the saccharine diathesis. The disease creeps on, frequently so gradually, that the existence of such a dangerous malady is not for weeks, for months, even suspected. This accounts for a fact of too frequent occurrence, viz., the length of time that the disease has been in existence ere the patient be subjected to the treatment upon which experience has set the stamp of value.

I have at this moment under my care five patients who, when first submitted to the treatment, were (though in varied degrees) so severely affected with diabetes mellitus, and all its wasting consequences, as to give them the character of hopelessness. They have all unflinchingly adopted the treatment, dietetic (including the restriction as to liquids), cutaneous and

alkaline, and certainly with results the most encouraging. It were needless to go through the details of these cases; they have all increased in weight, and three of them to their original standard of health. The diuresis has ceased; thirst is no longer urgent; the density of the urine has diminished many degrees, and scarcely is a trace of sugar to be detected. Satisfactory, however, as the recovery has been, I still am of opinion that they could not with impunity depart from the rules prescribed. Their dietary is quite sufficiently varied and palatable, and there is nothing in the whole plan onerous, nor does it interfere with daily habits and pursuits,—the more active the life led, the more is the ultimate cure promoted. Every one of these patients has passed the meridian of life: at the outset their symptoms, though formidably urgent, were less acute than I have seen them in much younger persons. One of these patients spent the last autumn in the south of France and the Pyrenees, and he told me that during the whole of the time he was there he perspired profusely, and while in that state of perspiration he could, without the least suffering from it, eat every variety of food. This fact, and many besides of the same bearing, tends to establish the value of enforcing, and afterwards maintaining, a full cutaneous transpiration; not, however, depending upon it alone, but combining it with the other essentials of treatment.

There is a remarkable tendency in some hospital patients to practise deception. I remember one patient, a sailor, who carried the system of deception, both as to meat and drink, to an extraordinary length. He was also remarkable for having the front of his blue, shaggy trousers always, as it were, frosted over with innumerable crystals of sugar.

Much of the success of treatment depends upon the intelligence and hearty co-operation of the patient.

I shall not trespass further upon the patience of my readers; many more facts and observations I could easily introduce: those already stated will, I think, suffice to establish the following propositions:—

First. That no single remedy as yet discovered is capable of curing diabetes.

Secondly. That it is one which needs variation and adaptation of remedies, according to age, sex, acuteness of symptoms, stage of disease, and complication with other affections.

Thirdly. That the most successful treatment is the systematic, carried out in all its details, and long persevered in.

Fourthly. That there is a long-persisting liability to relapse if the anti-diabetic treatment be laid aside.

Art. II.—*On some Rare Injuries of Joints, the Result of Accident and Disease.* By Richard G. H. Butcher, Fellow and Member of Council of the Royal College of Surgeons in Ireland, and Examiner in Anatomy, Physiology, and Pathology thereto for five years; Surgeon to Mercer's Hospital, &c. &c.

A patient was admitted into Mercer's Hospital, under my care, on June 1st, 1853, having sustained the following severe, numerous, and complicated injuries:—*Compound dislocation of the right wrist joint, with fracture of the radius and ulna immediately above the radio-carpal articulation; fracture of both bones of the left forearm above the wrist joint, with the articulation extensively laid open in front; comminuted fracture of the left thigh bone, with laceration of the ligaments about the right ankle joint; and finally, denudation of the frontal bone by a jagged wound, from two to three inches in extent, situated above the left brow.* The details of the case were as follows:—E. M., aged nineteen years, a young girl possessed of many personal charms, became the victim of seduction, and was left by her betrayer in a house of ill fame in this city, not many days after she had quitted her own home with him. When she became aware of his desertion, and awakened to her own desolate condition, she could scarcely be restrained from destroying herself. She made several attempts to jump out of the highest windows in the house; to prevent such an occurrence, the sashes were all nailed down, and she was closely watched. The poor creature scarcely took a particle of food, or associated with any one, for four days; and on the evening of the fifth so determined was she to destroy herself by precipitation from the house, that she drew the nails binding down the sash of one of the highest windows (four stories from the ground), and leaped out. She was almost instantly missed, and discovered in the back yard, lying a senseless mass. The occurrence took place not far from the Hospital, to which she was at once conveyed, and I saw her immediately after. Stimulants were administered, frictions employed, heat communicated, and as a result the respirations became more developed and steady, the pulse enlarged and equable, consciousness was gradually replaced, and finally, the restored sensibility was rendered manifest by the prolonged screams of the sufferer from agony of body and mind. On removing the clothes from the patient, the lesions above enumerated were discovered to have taken place. I cannot bring to my remembrance a single instance where the deformity at all approximated the same extent as that represented in the right

arm. The forearm lay partly flexed upon the arm, and midway between supination and pronation, the fingers being tightly clenched upon the palm of the hand; the bones constituting the first row of the carpus were driven upon the posterior surface of the radius, causing a remarkable prominence there, while the triangular inter-articular ligament binding the ulna to its inner edge was torn through, together with the sacciform ligament, thus permitting the ulna to pass inwards, and so increasing the transverse width of the joint. On looking at the joint in front, a lacerated wound, an inch and a half in extent, marked the transverse course of the radio-carpal articulation; through this wound the end of the radius was thrust out; at least two-thirds of the depth of its articulating surface, from before backwards appeared, shining, glistening, and covered with cartilage, or, more accurately speaking, the two external thirds of the articulating surface, to the depth mentioned, appeared through the wound, for there seemed a rotatory displacement; the carpus and hand were driven backwards, at the same time twisted outwards, while the radius was rather rotated inwards, thus presenting the diagonal of the articulating surface in the wound; the flexor tendons passing beneath the annular ligament were thrust to either side, by far the greater mass inwards, thus adding greatly to the deformity in front. In addition to the displacement of the joint, both radius and ulna were broken two inches and a half higher up, a lesion likewise conducive in augmenting the deformity, for the broken fragments tended towards the interosseous space, giving a constricted appearance to the limb at the site of fracture. It may be a difficult matter to conjecture the co-existing occurrence of dislocation and fracture in such close proximity. The following is the explanation I would offer:—The woman when falling to the ground had the arms outstretched, the palms of the hand met the ground, the propelling weight was so great that the radius was thrust forwards and the carpus back, the force being still perpetuated, and the extremity of the radius, as well as the ulna, opposed by a resisting medium, both yielded in their continuity at the point already referred to.

The left forearm presented injuries, likewise, of a very grave nature; a wound, three-quarters of an inch in extent, corresponding to the radio-carpal articulation, lay in front of the joint, communicating with it, and through which the synovia escaped very freely. In this instance, also, the radius and ulna were broken at about the same point as the bones in the right limb; the same explanation which I have offered re-

lative to the production of the compound dislocation of the right wrist occurring simultaneously with fracture of both bones higher up, will also apply here.

Dislocation of the wrist joint, either backwards or forwards, is an accident of very rare occurrence. No matter whether considered in its simple or compound form, the anatomical configuration of the parts would lead us to the supposition that the former, dislocation of the carpus backwards, would be most likely to occur, being facilitated by the direction of the convex articular surfaces of the scaphoid, lunar, and cuneiform bones, which slope more backwards than forwards. However, it must never be forgotten that the direction of the force will determine, in a marked manner, the direction in which the carpal bones may be thrown. Though from the earliest times dislocation of the wrist-joint has been mentioned in books, Dupuytren doubted the possibility of its occurrence, owing to the guarded way in which the articulation is clasped by various tendons. So considerably did Dupuytren estimate the resistance of the several flexor tendons in front, in case of violent extension of the wrist, that he was convinced a force of two thousand pounds' weight would not overcome it. That Dupuytren over-estimated the force requisite to produce the accident under consideration, I have little doubt in my own mind. Velpeau, arguing in the same way, though acquainted with Voillemier's notable case, likewise denied the possibility of a simple dislocation of the wrist, and concludes by considering the question still open as to whether *simple* dislocation of the wrist-joint can take place. Voillemier and Nelaton have shown the existence of such dislocations, the former, by the most careful examination of a complete displacement of the wrist backwards, and of the bones of the forearm forwards[a]. I will not

[a] Voillemier, in the Archives Générales de Médecine, 1839. The following is an abstract of the case (see Cyclopædia of Anatomy and Physiology for a most admirable paper on the Abnormal Anatomy of the Wrist Joint, by Mr. Adams of this city): "Levillan Louis, aged 27, of a vigorous constitution, on the 28th of September, 1839, was admitted under the care of M. le Noris, into the Hôpital des Cliniques (Paris). At the moment of admission he was in a hopeless state, completely insensible, the pupils largely dilated, the respiration stertorous. Amongst other lesions from which the patient had suffered, in consequence of his having fallen into a court-yard from a window three stories high to the ground, it was noticed specially that the left wrist-joint presented a very remarkable deformity, and of such a nature that Voillemier, prejudiced as he said he felt he was that a luxation of the wrist was a great rarity, if not an impossibility, could not help saying to his colleague, M. Dumeril, present at the examination of the patient, that the case before them was one of dislocation of the wrist. Four hours after the admission of the patient into hospital he died. The forearm was semiflexed as well as the hand; the bony plane represented by the metacarpus and the carpus was almost parallel to that of the forearm; the hand was neither adducted

now dwell upon congenital dislocations of the wrist, of which I have had many examples, but shall merely allude to those in which the dislocation of the wrist joint may be effected by steady and gently continued traction, exerted for a length of time upon the part, such as would be perpetuated by the contraction of the cicatrix of an extensive and deep burn. Such a case has been figured by Cruveilhier[a], where the end of the radius was in front of the carpal bones. I have in my possession a cast illustrating dislocation of the carpus forwards, produced likewise by the contraction of the cicatrix after burn. It is thus noticed in my catalogue:—"Cast, No. 199. *Dislocation of the Wrist Joint forwards.* This cast is peculiarly interesting as bearing upon Dupuytren's statement, that dislocation of the wrist joint may be occasioned by disease, while he denies its occurrence as the result of accident. He attributes those cases which have been written about as dislocations of this joint from accident to error in diagnosis, as he had most frequently seen fracture of the lower end of the radius mistaken for it. The particulars of the present case are as follows:—

nor adduced, but had suffered a displacement "de totalite," towards the internal side; at the posterior or inferior part of the forearm there was a saliency formed by the displaced carpus; a line drawn from the summit of this saliency to the phalangeal extremity of the metacarpal bone to the middle finger measured three inches and seven lines, the same length which the uninjured carpus and metacarpus of the opposite side presented; at the inferior and anterior part of the forearm there existed a transverse eminence, situated about eight lines nearer to the extreme points of the fingers than the posterior saliency, while it projected anteriorly beyond the plane of the palmar surface of the hand fully seven lines; the radii on both sides measured alike; the skin was abraded, and a wound about an inch long existed on the dorsal surface of the radius near the wrist, at about the level of the superior border of the pronator quadratus. The external lateral ligament and the posterior ligament were lacerated, the anterior completely torn from the border of the radius; some remnants of this structure lay on the front of the carpus; the internal lateral ligament was not torn, but the styloid process of the ulna maintained by this ligament and at the same time by the attachment of the sheath of the flexor carpi ulnaris, had been detached from the body of the bone. Thus all the means of union of the articulations had been completely severed, and the bones of the forearm were only held to the carpus by some bundles of fibres, which passed posteriorly from the triangular ligament to the internal side of the carpus. The radius did not present any trace of fracture; the body of the ulna was also unbroken, but its styloid process was torn from the rest of the bone, although still held by ligament and tendon as above mentioned. In the new position which the bones of the forearm had accidentally assumed, relatively to the carpus, they concealed and lay in front of the whole first range of carpal bones, and had been arrested in their descent only by the true annular ligament and the tendons of those flexor muscles which pass behind this ligament."

Nelaton has shown (see Nelaton, Elemens de Pathologie, vol. ii. p 408), that dislocation of the bones of the forearm backwards, with displacement forwards of the carpus, may take place as the result of accident, exactly the reverse of Voillemier's case and of mine.

[a] Anatomie Pathologique. Des Articulations. Folio, Paris, 1829–1832.

Bridget Melia, aged 13 years, was admitted to Mercer's Hospital in 1849, with the dislocation of the wrist-joint forwards, as represented in the cast. The deformity was occasioned by the gradual contraction of the cicatrix, resulting from a burn which she received on the dorsum of the hand and lower end of the forearm seven years previous to the above date. There was total incapacity of flexing the hand on the forearm in the slightest degree, even the most forcible efforts of the surgeon could not accomplish it, so tense and firm was the tendinous cicatrix. The web in this instance was likewise connected to the index finger, which was thrown into a bent position, in the most forcible angle of extension, even to the dislocating of the first phalanx of the finger behind the phalangeal extremity of the corresponding metacarpal bone. The index finger appeared also to have suffered from defective nutrition, as it seemed by comparison much smaller than the others."

The next injury to be considered in the foregoing case is the smashed condition of the thigh. On examination the left femur was easily discovered broken in the centre, the fragments being extensively shattered; so obviously was the bone comminuted, that the thigh appeared a round, misshapen mass; the amount of shortening, by the most careful measurement, fully realized four inches; the leg and knee were everted and rested on their outer side, while the upper fragment, together with the pelvis, were twisted inwards, as the patient writhed in agony from the constant and prolonged spasms which seized upon and agitated the limb. Upon reflection, it is not easy to reconcile how so great an amount of crushing force could be applied to the osseous tissue, without compromising at the same time the continuity of the soft parts; nevertheless, though the integuments were violently contused, together with the several tissues between them and the bone, though vessels were lacerated, and blood copiously extravasated, the disrupturred parts were not exposed, they remained protected from atmospheric influences.

In reference to the minor injuries,—the laceration of the ligaments around the ankle, and the wound over the forehead laying bare the frontal bone,—the following are the particulars:—The yielding of the lateral ligaments, from violent twisting of the foot, has been doubted by many authorities, who contend that the osseous projections to which the ligaments are attached will break off before the fibrous tissue yields. However, I have seen numerous cases where both lesions have taken place as the result of violence; in the present instance, the anterior portion of the external lateral ligament was torn

through, likewise the internal lateral separated from the malleolus, together with numerous minor bands torn across in front of the joint; this extensive laceration of the protective tissues about the articulation permitted very free mobility of the foot in almost every direction. The wound upon the forehead was situated above the right brow, between two and three inches in extent, the soft parts were divided down to the bone, and the cut edges were both jagged and uneven. I have now completed an outline of the various injuries sustained by the patient, and it remains to be noticed the rotation in which they were attended to, the modes of treatment adopted, and finally the terminal results.

In the present case hemorrhage was not an alarming or even an urgent symptom, demanding, as it usually does, the immediate exertions of the surgeon for its suppression; as, though the wounds were extensive and deep through the soft parts, the blood issued but tardily: a result ascribable to two powerfully operating causes, viz., the depressed vital powers consequent upon the reception of so severe a shock, and the laceration inflicted on the edges of the wounds by the violence producing them. Such being the case, the thigh first demanded special attention, for to it all the agonizing sufferings of the patient were referred. The amount of shortening was so great,—being fully four inches, as already noticed, owing to the comminution of the bone,—no line of treatment afforded hope of relief, but that which would bring back the shattered fragments to position, restore the limb to its normal length, and maintain it so; such results were only to be achieved by keeping up permanent extension, and to the fulfilment of this end no apparatus promised to be so efficient as the modification of Liston's splint, which I am in the habit of using. In the February Number of this Journal for last year there is contained a paper of mine on the Treatment of Fractures of the Femur, illustrated by numerous cases, where the value of the splint has been demonstrated in every form of fracture to which the thigh bone is liable. I cannot express too strongly the advantages accruing from the mode of practice which I inculcate in fractures of the thigh; a practice which, if carefully followed out, will, in all instances, procure for the sufferer a limb unaltered in its length, and unimpeded in its functions. The apparatus is figured in the paper to which I have referred, both as applied to the patient and detached, with an accurate scale of its proportions given.

In the present instance the traction was continued long and steadily upon the limb for at least fifteen minutes before the

spastic contractions of the muscles could be overcome; absolutely the strained integuments threatened to yield before the normal length could be obtained; this, I think, may be attributed to the very remarkable approximation between the ends of the muscles resulting from the excessive shortening, while, at the same time, it is difficult to reconcile the amount of resistance with the recent occurrence of the accident; the limb, however, after gentle and continued traction, was restored to its full length, and the long splint applied in strict accordance with the rules which I have prescribed: the patient almost immediately expressed herself released from pain and spasms.

In order that the splint should be evenly applied, it is essential that the patient should be placed on a firm bed; in this case a mattress was prepared, covered with a folded blanket; and upon this the patient was laid before the splint was adjusted. If the bed be a soft one, the following are the injurious results which must occur: the pelvis sinks and carries the upper fragment with it; the splint, though lashed to the limb and trunk, cannot go backwards, for its upper end, close to the arm-pit, rests upon the bed, where it is not depressed, owing to the pillows supporting the head, which tend, likewise, to the elevation of the shoulders; thus then the splint retains the straight line in which it was applied, while the thigh and pelvis gravitate backwards; the ends of the broken bone are distorted in their proper axis; the circular turns of the bandage are all displaced, making uneven and irregular pressure, constricting the parts, perpetuating irritation, and ultimately requiring to be removed altogether.

The next indications of treatment pointed to the wrist-joints, and to the dislocated one my attention was first directed; the violence being so recently offered, inflammation, and its tensive results, had not time to seize upon the part, so that by steady and well-directed manipulation the reduction was speedily executed. While Mr. Roe, the resident pupil, held the forearm and made counter-extension, I grasped the hand, drawing it downwards, giving it a rotatory movement forwards, while at the same time I pressed backwards and upwards the projecting extremity of the radius. A splint was then laid along the back of the forearm, extending from the elbow to beyond the tips of the fingers. The splint was wider than the forearm, it was well padded in a particular way: a thick layer of wadding was applied from one end to the other, so as to fill up the interosseous space, and to keep apart from it the broken fragments of the radius and ulna, both above and below the solution of continuity in them; a pad somewhat

conical was arranged between the dorsum of the hand and the splint, so as to support forwards the hand, slightly flexed, with the object of approximating the edges of the wound in front of the joint; a few turns of a bandage were then made to encircle the splint and hand in this position, and steady it so; while the forearm and splint were bound together in a similar way. Thus the lower third of the forearm, together with the wrist joint, were left uncovered, at the same time that the bones were steadied in admirable position. The elevation of the hand forwards from the splint, as already noticed, had the effect of bringing nearly in contact the edges of the wound, through which the end of the radius was thrust.

Owing to two causes, the reaction of the system, and the unavoidable violence offered to the soft parts, the lips of the wound began to yield blood, mixed with synovia, pretty freely. This I did not wish to suppress, but rather encouraged the flow, by the application of flannels wrung out of hot water. The left forearm was steadied upon a splint, and treated exactly in a similar way to the right; the wound was in like manner dealt with. The wound upon the forehead was next attended to; the hair being removed from the front of the head, the flaps were gently drawn together, but not brought into apposition; a warm sponge was laid over the part, and an oozing of blood procured from the wound. Lastly, a wetted roller was applied to the injured ankle, the foot being steadily held at right angles with the leg; several turns of the bandage were first passed round the foot, and afterwards carried upwards, so as to envelop and support the torn ligaments around the joint. This I consider a far better mode of proceeding in injuries about the ankle than making the figure-of-eight twist in the first instance; for by it the undue constriction above the malleoli is guarded against, at the same time that the bandage, if properly put on, permanently retains its position. After this the part was exposed to the air, and evaporation favoured: these several dressings being completed, a full warm anodyne was administered.

9 P.M. On inspection of the patient, I first ascertained that no undue pressure was exerted anywhere by the mechanical apparatus employed. She was comparatively free from pain, all spasms and startings of the thigh having subsided; there was but little uneasiness in either upper extremity; the weeping of blood from the wounds had continued up to a short time before my visit, yet was not accompanied either by depression or sinking of the pulse; all hemorrhage had ceased, though hot stupes were sedulously continued. The forearm

was so efficiently steadied upon the splints that the wounds remained perfectly at rest, and when the bleeding ceased, "glazing" of their surface was not interfered with; the synovia was not oozing out; and to perfect the covering of the traumatic surface I applied collodion very freely, with a few shreds of lint to steady its tenacity. Thus, by the efforts of nature and the application of art, both joints were hermetically sealed up. The wound on the forehead likewise had ceased to bleed, therefore I brought its edges together, and retained them so by straps of adhesive plaster; warm stupes were ordered to be continued over each joint through the night, and an opiate of forty drops of tincture of opium, in a pint of bottled porter, was administered.

June 2nd. Complete reaction; pulse 98, rather full; bowels freed by an emollient enema; a quiet night was obtained by the patient, she had no startings or cramps in the thigh, the length of which preserved its maximum, and the splint, bandages, &c., lay applied, and unproductive of undue pressure or uneasiness. Some slight pain was referred to both wrist joints, particularly the right; there was some tension also about the latter. Again I was careful to satisfy myself that the bandages and splints were fairly adjusted and not exercising undue constriction anywhere, the annoyance being alone referable to the localized injuries. This morning a new symptom has complicated the case, namely, retention of urine. I introduced the catheter, and drew off about a pint and a half of healthy urine. Six leeches were applied above the right wrist, where exposed in front, and four above the left; warm stupes to be continued to each. I readjusted the wetted roller round the ankle, and ordered folds of linen damped in cold water to be laid over the forehead. To have tea and toast for breakfast, and a pint of beef tea, and bread broken in it, for dinner.

9 P.M. The leeching and warm stupes about the joints removed the pain and tension complained of in the morning. Not a drop of synovia has escaped since the wounds were first sealed up. I again applied the collodion; stupes to be continued all night, and the porter and anodyne to be repeated.

June 3rd. Has had a quiet night; pulse full, 96; she suffers no uneasiness whatever from the thigh; the heel was elevated a little from the bed by a few turns of the screw; tensive uneasiness again referred to the right wrist joint; the wound upon the forehead re-dressed; its edges being slightly inflamed, a light poultice was placed over all; diet as on yesterday.

9 P.M. Pain again relieved by the leeching; to continue stupes, porter, and anodyne.

June 4th. 9 A.M. Great vigilance and restlessness through the night; towards morning the patient became exceedingly agitated; she made several attempts to get out of bed, to avoid the presence of friends, whom she imagined were in the ward. She could answer questions collectedly, but would suddenly burst out in immoderate fits of laughter. Through this apparent excitement the pulse was not much altered in character, and there was no fever. The complication of retention of urine, which had existed from the first, passed away, the patient being able to empty the bladder at will. Carbonate of ammonia in combination with blue pill was given, and a full opiate immediately administered; six ounces of wine ordered in divided doses, and beef tea for nourishment. Stupes to be continued.

4 P.M. On visiting the patient I found her tranquil, after having slept for two hours; she quickly recognised me, and reason seemed to be restored without any apparent crisis; she felt better, and was free from pain in the injured parts, and the splints and dressings were not disturbed by the constant restlessness in the morning. To have porter and anodyne as usual.

June 5th. Slept uninterruptedly nearly the entire night, and awoke quite conscious and refreshed. She complains of pain in the right wrist, but the left is free from any uneasiness. Now for the first time, the splints were readjusted, the forearms and hands were placed upon the splints exactly as before, and retained so in a similar way; the wounds were not interfered with, while great caution was observed that their edges should not be separated, or the coatings of collodion disturbed. She was ordered beef tea, wine—four ounces, and stupes to be continued to the arms as before.

9 P.M. Again nervous delirium has been manifest. Ordered a pint of bottled porter, with forty drops of tincture of opium in it, and to be repeated in three hours if restlessness continued.

June 6th. Both opiates were taken on the past night before sleep was procured; when induced, it came on very suddenly, the patient being just before both restless and loquacious. After this she slept uninterruptedly for four hours, and she awoke quite composed. This morning she is quite rational, all the wildness and brilliancy of the eyes gone; the cheeks are pale, and she is unconscious of the recent annoyance, while her whole mind seems prostrated and absorbed by her degradation. The wounds in the forearms continue perfectly closed; no synovia has escaped from either. I reapplied the collodion; the thigh remains as when first put up; the splint has

never been removed, though on three or four occasions the counter-extending lac was changed. I must again refer to my paper on the Treatment of Fractures of the Thigh for the precautions to be observed in this procedure. The wound on the forehead is nearly healed, and the swelling and effusion of blood about the right ankle are considerably lessened, with the repair of the lacerated ligaments favourably progressing.

June 9th. There has been absence of the delirium for the last two days, but it is now again present; she was ordered a grain of opium every third hour; wine, six ounces; chop and beef tea for diet. The injuries demand no special notice; to continue stupes.

9 P.M. More tranquil; porter and opium as usual.

June 12th. There has been no return of the delirium since last report, and all the injured parts remain free from pain; she was ordered to continue a grain of opium three times a day; wine, six ounces; chop; beef tea; eggs beaten up in boiled milk with two ounces of spirits; likewise the porter and opium at night; to continue the stupes.

June 21st. From last report the patient has gradually improved; the nervous system has been composed; no recurrence of the delirium. On this day I re-dressed the forearms, the wounds were quite healed, a curved splint was applied to the anterior aspect of the right forearm, and the hand bandaged to it, slightly adducted, so as to throw out the extremity of the fractured radius. Such a mode of proceeding could not be adopted sooner, as it would militate against the union of the extensive wound in the wrist, and could not be accomplished without having the end of the radius again thrust through the gap. The left forearm was put up with a splint on its anterior and posterior aspects, conical pads being employed to maintain the full breadth of the interosseous space. On this day, for the first time, I readjusted the splint upon the thigh; the limb, after the most careful measurement, was pronounced to be its full length; a considerable amount of thickening in the vicinity of the fracture was remarkable, but by no means that abundant supply of provisional callus which Dupuytren supposed, from his experiments on animals, to be absolutely an essential portion of the process of repair, a result which recent investigations have proved not to be applicable to the human subject. The wound in the forehead was now entirely healed, and from the steady support and pressure afforded to the ankle, its lacerated ligaments were nearly cured. Full diet; wine, six ounces; a grain of opium at night.

July 12th. I removed the splint from the left forearm; bones perfectly united, and no deformity whatever; the splint on the thigh was readjusted.

July 17th. The splint was removed from the right forearm: union between the broken bones is perfect, but the limb is not so straight as the left, owing to the causes already assigned, and which could not be averted by either care or ingenuity; gentle flexion and extension of both wrist joints to be guardedly practised.

July 22nd. Splint removed from the thigh: the union of the bone is perfect, and its normal length preserved. There was no galling at the groin, or marks of undue pressure at the heel or ankle. I applied a roller from the foot upwards to the groin, and placed a few pillows beneath the ham.

July 25th. Already the patient is able to bend the leg at right angles with the thigh; and has gained considerable power over the fingers of both the right and left hands, even so as to be able to execute fine needlework; the flexion and extension, as well as the pronation and supination of the left wrist, are perfect, while the motions of the right are in some measure limited.

August 5th. The patient is now able to move about the ward with the aid of a crutch, and on the 20th she was able to walk without any assistance. On the 9th of September she could walk even without the least impediment or halt in her gait. She was dismissed the hospital, perfectly cured, and received, through the influence of kind friends, into "a house of shelter."

A review of this case embraces numerous interesting points of treatment. The compound dislocation of the wrist, complicated as described; the fracture of the left forearm and extensive wound of the joint, each treated by the local abstraction of blood very freely procured from the cut surfaces, and afterwards by the repeated application of leeches; the closing of the wounds, and the sealing of them hermetically with an artificial covering impermeable to wet; the keeping of the parts immediately in their vicinity bathed in moisture and heat for weeks; the immobility of the wounded parts protected from motion or displacement,—all combined towards the favourable results, preservation of the limbs and nearly perfect motion: the wound over the forehead, laying bare the bone, treated also by detraction of blood from the part, and, after all oozing ceased, apposition of the flaps and retention by adhesive straps. In the lacerated ligaments about the ankle the beneficial effects

from the assiduous application of cold and pressure were strikingly manifest.

The treatment of the thigh by permanent extension cannot be overlooked; all the advantages from its adoption as modified by me, and which I have attempted to lay down in the paper already referred to, are corroborated in a very striking way by the results of the foregoing case. From the time of the application of the splint to the end of the cure, no uneasiness was complained of. From the very first the spastic contractions of the muscles, which threatened to be so troublesome, were subdued, and their convulsive startings checked. Neither inversion nor eversion of the limb was permitted, owing to the construction of the splint; therefore no displacement could occur between the fragments, and the bandages were suffered to remain undisturbed. Twice only within a period of eight weeks, from the reception of the injury to the consolidation of the bone, had the splint to be readjusted,—a fact which proclaims its efficiency; a true test to be duly appreciated by the practical surgeon, for he, from experience, can estimate the beneficial results likely to occur from maintaining the limb at perfect rest in the early stage of treatment, and also in the latter period; in the former, by it, irritation is avoided, fever averted; in the latter, false union guarded against, perfect consolidation of the bone promoted and insured.

It remains now only to notice the distressing complication of traumatic delirium, which was ushered in on the fourth day after the reception of the accidents. In this case the delirium was subject to remission, a type which I have frequently seen prevail. Dupuytren, in similar instances, placed the greatest possible reliance on enemata, consisting of small quantities of opium diffused through a large quantity of fluid, the form being six drops of tincture of opium to a quart. This method he would adopt from the knowledge of the modifications which medicines undergo in the stomach. I do not think the argument holds good, however, as regards the fluid preparations of opium. I have frequently tried Dupuytren's method of treatment, *when admissible*, in delirium tremens, but must candidly acknowledge the results were not such as to confirm the reports given by the illustrious surgeon of France. I have placed in italics the words "when admissible," in consequence of having met with many cases where, from the violence of the patient, such a mode of practice could not possibly be pursued. In the present case of traumatic delirium, the repeated exhibition of opium, stimulants, and nutrition, quieted in a few days the ner-

vous excitement: I remarked before there was no fever present. By this mode of treatment I have been equally successful in numerous cases where the delirium has come on as a complication in bad fractures, occurring in mechanics, who are generally broken down by intemperate habits; and so favourably do I look upon the practice, that when a patient of this class comes into hospital, I at once place him under the influence of opium, gently, and continue it for four or five days, a period which invariably fortifies him against an attack. When nervous and hysterical females become the subjects of accidents, I pursue a similar practice likewise, with the very best results.

The next case which I shall relate presents features also of great practical interest; the details of it have been already noticed in the records of the Surgical Society of Ireland. It may be headed :—

Abscess from Injury, terminating in disease of the Tibia; separation of its Epiphysis; Pyœmia, and Death.

Henry Latuine, aged ten years, was admitted into Mercer's Hospital on the 22nd of February, 1853. It was stated he had received a kick on the inner side of the right knee six months before his admission. Severe pain and swelling rapidly set in over the upper part of the tibia, terminating in the formation of matter. For three weeks a hard, shining swelling appeared, tense, throbbing, and acutely painful, accompanied by high fever, burning skin, rigors, rapid pulse, and restless nights. At length the abscess gave way, diffusing its contents up and down the limb, attended with a remarkable subsidence of the constitutional disturbance. A small opening had been made on the outside of the thigh, a little above the knee, through which a small quantity of matter drained off. A new train of symptoms quickly set in,—night-sweats, occasional diarrhœa, flushings at intervals, and all the concomitants of irregular hectic. The case proceeded from bad to worse, and the patient was received into hospital, on the date above mentioned, in the following condition:—Countenance pale, waxy, but flushes on the least exertion; pulse rapid, 140; respirations very hurried; constant dry cough, with perpetual watchfulness at night, and occasional sweats. On examining the limb, the knee joint, though slightly puffed, bore pressure in all directions; the patella might be forced back, or the tibia struck forcibly against the femur, yet little pain was caused. There was no proof of the joint being seriously involved. Over the part originally injured the integuments were quite elastic,

and on pressure yielded deeply, giving evidence of a large cavity containing pus. Matter was diffused along the outside of the thigh as far as its upper third, and down the leg as far as its middle, and through all the intervening space. The entire surface was extremely tense, and sensitive to the touch. The matter was situated beneath the fascia, and the areolar tissue between the latter and the integuments infiltrated with serum. The leg was, by vital anchylosis, fixed at rather an obtuse angle with the thigh, extension beyond which greatly aggravated the sufferings. The skin of the entire limb presented a furfuraceous coating. On admission, an opening was made three inches above the knee on the outer side of the limb, and another on the outer side of the leg. Through these apertures a very large quantity of fetid pus escaped, but especially so, and tinged with blood and small clots, when pressure was exerted on the cup of the large abscess, corresponding to the inner and upper third of the tibia. On the introduction of a probe from the external aperture, it was ascertained that the tibia was stripped of its periosteum. The leg and thigh were placed in tails, and laid on an inclined plane. The patient was allowed liberal diet, and medicine administered to arrest the alvine excretions, &c. On the 28th of March he had short and restless sleep; face cold, and somewhat livid; eyes brilliant; hair all thinned, and falling off; pulse very small and rapid; respirations hurried and embarrassed, and catching when he tried to speak; the alæ nasi participated in corresponding dilatations and contractions; surface of the body colder than the natural standard; tongue coated, but not much gastric derangement. On removing the tails, &c., to make a careful examination, I found the matter still passing freely up and down the limb. It could also by force be pressed out of the deep cup at the inner side of the leg by a circuitous route. I made an opening into this abscess by striking a bistoury perpendicular to the surface, and cutting freely from within outwards, at least an inch and a half in extent. As the knife divided the parts, it was instantly followed by a large quantity of highly fetid pus, mixed with dark, bloody coagula. On introducing a probe, the head of the tibia, and three inches of its shaft, were found to be stripped of periosteum, and rough. The limb was then carefully rolled, commencing at the foot and extending to the knee, avoiding the apertures. Another roller was applied from the waist down the thigh, as far as the knee, with a hole cut in it over the opening on the outer side. These bandages then approximated the separated tissues both in the thigh and leg, and placed them in the most favourable position for repair, and when the limb

was placed on the inclined plane, the pillow in the ham prevented pouching there, the only part of the limb left unsupported. In accordance with this intention, the opening was not made in the most depending part. He complained this morning of inability to move the right arm. My attention was at once directed to the shoulder, where an examination showed a large abscess occupied the infra-spinous fossa, and an inch below its base; it was characterized by a very imperfect barrier; around, it was very elastic to the touch and communicated a distinct fluctuation. Numerous small veins coursed over its surface. This I could not at the moment open, as the patient was fatigued after being dressed. Wine and full diet.

On examining the chest, slight dulness over the left subclavicular region, extending as low down as the middle of the lung, was detected, and the dry cough attended by sub-crepitating râle.

March 1st. Had sleep through the night; free from pain; countenance pale and livid, particularly the lips; eyes clear and glassy, somewhat sunken; alæ nasi dilated and contracted very rapidly, bearing indication of the hurried and laboured respiration; pulse very feeble, 136. The breath was loaded with the fetor of purulent matter; tongue clean; bowels regular; urine high-coloured, yet in considerable quantity; hue of the entire body of a dusky yellow tinge. On examining the limb, not so painful during the necessary movements, very little matter could be pressed out; the small quantity afforded was mixed with air and small coagula of blood, highly offensive. A small abscess formed in the middle third of the leg; this I gave exit to by incision,—an ounce and a half of ill-conditioned pus flowed out; I bandaged the limb as before. On examining the abscess over the infra-spinous fossa, its measurements were four inches and a half in the vertical and transverse directions; the integuments over it were very thin, and in one point discoloured of a brownish hue. I opened it with a small bistoury, and allowed six ounces of thick, yellow pus, perfectly healthy in its character, and void of smell, to escape. After being emptied, the edges of the wound were brought together with adhesive plaster.

March 2nd. Pulse so rapid as not to be counted; respirations 85 in the minute; wine, &c.; refuses diet.

3rd. Little change in either pulse or respiration, latter more hurried; belly tympanitic. On removing the dressings from the limb, it was quite apparent that the epiphysis of the tibia had separated from its shaft. This was readily ascertained by the introduction of a probe, and also by lifting the leg and foot

from the bed. The line of solution of continuity was evident to every bystander. Limb steadied as before, on the double inclined plane, with pillows and bandages.

4th. Constitutional symptoms as at last report, save that the voice was much more feeble, indeed, scarcely audible. On examination of the limb, the deformity was increased; the condyles of the femur projected in strong relief in front, and the foot and leg lay everted and shortened; very little discharge from either of the suppurating surfaces.

5th. Pulse and respiration extremely rapid; bowels freed three times, and tympanitis increased; chest more dull on percussion, and breath heavily loaded with fetor of purulent matter; skin more of a yellow tinge, and countenance greatly sunken. Ordered stimulants, &c.; turpentine internally and externally.

9th. Countenance more sunken and livid; eyes remarkably brilliant; pulse 90, feeble, scarcely to be felt, and so rapid as not to be counted; respirations 110 in the minute; voice audible only as the faintest whisper; purulent fetor from the breath, if possible more offensive; short cough, but *no expectoration;* limb being in the same position, vitality so low that there was scarcely any discharge.

11th. Rapidly sinking; countenance more of a leaden hue, and lips quite blue; at intervals irregular rigors, and chattering even of the teeth; tongue dry and brown, and teeth covered with a thick, dark paste; the eyes have lost their brilliancy, and the cornea now seemed opaque; secretion was entirely arrested in the limb and shoulder.

14th. Many of the symptoms above noted continued without interruption; the eyes were fixed and staring; he remained motionless for a length of time, and then screamed out in the most shrill, wild manner, and so loud as to be heard in the corridors, far apart from the ward in which he lay. Through this peculiar mode of death he struggled for twenty-three hours, when life ceased.

From the history of this case it would appear that an abscess formed as the result of the injury inflicted over the upper part of the tibia. The matter remained there bound down by strong resisting fascia, unable to gain the surface, closely approximated to the bone, stripping its periosteum, and involving it in ulceration and death; the rapidity of the parts participating in the destructive process being, perhaps, hastened by injury inflicted on their vascular connexion at the time of the accident. While these symptoms were present, the fever was of a purely sthenic character. The expansion of the pyogenic

sac continued, while interstitial absorption removed the parts exterior to it, and at length the sac itself yielded to ulceration; the matter being diffused extensively through the limb, breaking up textures, and disintegrating parts. When such a result occurred, the character of the fever changed, and assumed the asthenic type. No vascular congestion, no fibrinous exudation, limited its track; the parts were submitted to the crumbling agency of ulceration, and thus matters proceeded from bad to worse. Nature made the effort to cast off the dead bone by the process of necrosis, and towards such a result effected the separation of the epiphysis; but she was not able to complete the task; ulceration opened up the posterior wall of the joint, destroying all its ligamentous connexions posteriorly and within, and thus allowing the femur to glide in front, characterizing the deformity already alluded to. The train of alarming constitutional symptoms under which he laboured from the time of his admission into hospital were almost diagnosed from the first, and attributed to the entrance of pus into the circulation. From day to day we had evidence of veins being opened, blood having escaped both in the fluid state and in putrid coagula. There was no reason why absorbents, opened up by ulceration, should not feed on it, and thus pollute the system: but it is most likely that it directly entered the venous system, and was hurried along in the circulation to the right side of the heart, and thence to the lungs, where the globules, broken up or otherwise, were arrested in their progress by the minute capillaries, and, acting as foreign bodies, gave rise to the formation of pus rapidly, because the fever at this period was of a peculiarly asthenic character; and again, that the pus secreted was taken up by the minute pulmonary veins, and conveyed to the left side of the heart, and thence over the system, and was liable to be laid down in any particular tissue; in the free surfaces of joints, or in the structure of muscles, the sural mass, the pectorals, or those around the shoulder, as occurred in this instance. The dulness on percussion, the dry, irritating cough, and, above all, the purulent fetor from the breath, tended towards such a conclusion.

The following were the post-mortem appearances:—The popliteal space was completely emptied of all its areolar tissue, &c., and the popliteal artery, vein, and nerve, passed through quite unsupported. The artery and vein matted together, and surrounded with thick fibrinous layers, evidently thrown out by the vasa vasorum, to prevent the vessels being ulcerated. The two trunks preserved their caliber. I could not detect pus in any of the veins passing from the numerous sinuses in

the limb. The tibia in its upper third was dead; the epiphysis separated from it above, and was placed high up in the popliteal space; while below a narrow, ulcerated line marked the union of the dead and living bone. The periosteum on the healthy part of the tibia was continued superiorly into a thick, fibrous layer, which was one of the steps nature had advanced towards cure. It was apparent that when the upper part of the tibia died, she separated the epiphysis with the intention of bringing about reparation by the process of necrosis; and that this structure was the source from which the new bone was to have been secreted, but she failed in her efforts: the epiphysis itself died; the joint was opened into posteriorly, and all its ligamentous structures within destroyed, even the encrusting cartilages on the condyles of the femur, posteriorly, were rapidly involved in the destruction around, and the femur, from the weight of the trunk above, passed in front of the detached epiphysis and shaft of the tibia, forcibly characterizing the dislocation. On examination of the chest, recent adhesions were found between the pleura on the left side, particularly corresponding to the centre of the lung, that point manifesting greatest dulness on percussion during life. The heart and lungs were then carefully taken from the subject. On inspection, the surface of the lung, especially where the adhesions were torn through, presented a shrivelled, or rather puckered appearance, the elevations being highly elastic, springing to the touch, each permitting the point of the finger to pit, and well defined in its limits. This peculiar appearance was entirely confined to the upper half of the left lung, and especially to the part pointed out. No such semblance presented on the surface of the right lung. Both evidenced posteriorly the ordinary post-mortem congestion, the result of position. On section, the elastic springing points proved to be purulent depôts, not exceeding the size of a small thimble, or the cup of an acorn, and somewhat similar in shape. They were very numerous, and chiefly developed towards the surface of the lung,—each isolated from the other, each surrounded by parenchymatous structure of the lung, denser than in its normal state, and each filled with thick, healthy pus, void of smell. No such changes were to be found in the right lung; it was slightly emphysematous, but in neither could be discovered the least trace of tubercle, and the only morbid alteration whatever was the formation of those pyogenic cysts, and the increased density of the normal tissue around them. The pericardium contained about two ounces of straw-coloured serum. The heart, on section, was healthy both in its walls

and contents. Pus could not be detected in the blood under the microscope. The large abscess, situated beneath the spine of the scapula, did not communicate with the joint, but was confined to the muscular tissue of that region. Pus was not discovered in any of the joints.

The next case which I shall notice presents features of great rarity; and the preparation from which the accompanying illustrations were taken I consider to be perfectly unique.

Peter Kane, aged 50, was admitted into Mercer's Hospital in March, 1853. He had been in the Coast-guard service, and exposed to much hardship, and sometimes even to privations. When on board a vessel, and in the execution of his duty, a large block, upon which there was a heavy purchase, split, a part flew off, and with great violence struck him on the outside of the left knee. Inflammation, attended with swelling and acute pain, followed, but were relieved by leeching, rest in bed, stupes, &c. For some time after, he was liable on over-exertion to sensations of heat in the joint, almost amounting to pain. Scarcely, however, had six months elapsed after the receipt of the injury, when a more fixed and determined pain settled in the joint, at first confined to the site of the injury, but afterwards quickly implicating the entire joint; and as the case progressed, the maximum of pain was most acutely felt at its inner side. At this time he was received into hospital, and relieved by treatment, and afterwards went to the country for change of air. From this period to the date of his admission, as above noted, a long interval of time had elapsed, eleven years, during which period, on several occasions, the patient was under irregular treatment, changing from one institution to another, sometimes greatly benefited, at other times not relieved,—moving from one part of the country to another,—buoyed up with false expectations, terminating in disappointed hopes. On the date above mentioned he submitted himself to my care, fully prepared to undergo any operation which I might consider likely to prolong life. On the patient's admission he was run down and emaciated to an alarming degree by disappointment, prolonged sufferings, and want of sleep. Simple inspection of his countenance bore ample testimony to the inroads of a formidable disease which threatened life; the face was sunken, its expression haggard, with an icteroid tinge over it. The pulse was never below 120. He suffered from repeated attacks of bowel complaint, which frequently alternated with profuse night-sweats. The following were the striking characteristics of the limb:—As the patient lay upon his back,

the leg of the affected side was rotated outwards, while the thigh rested evenly on its posterior surface; the knee-joint presented a somewhat globular form, the integuments being strained over it, and of a dark, livid, red colour; the patella floated, being lifted forwards by a quantity of fluid (supposed to be pus), which distended the synovial membrane and textures around the joint. A fluctuating point lay in front of the patella, between it and the tense skin. The leg, as mentioned, lay rotated outwards; it admitted of rotation inwards, but no lateral or antero-posterior motion, ever so trifling, could be produced. On lifting the leg from the bed, the thigh followed its motions as if the intervening joint was anchylosed; the rigidity of the surrounding muscles did, in some measure, account for this fixity of the bones, but not to the full extent satisfactorily. By the rotatory motions of the joint, which were permitted to a far greater degree than natural, two important points were cleared up, namely, the destruction of the crucial ligaments, and the removal of the incrustating cartilages of the ends of the bones. The conclusion arrived at then, was, that the entire textures were destroyed, ligaments, cartilages, &c.; its capsule burst in several parts, and purulent matter diffused between the tendons and muscles around the articulation. Yet, one strange feature in the case I could not account for, namely, when the crucial ligaments, &c., were destroyed, what prevented the tibia dropping backwards? or why could it not be pressed inwards or outwards so as to represent lateral dislocation? The explanation was in the end amply afforded by the post-mortem appearances. From the most careful consideration of the case in all its bearings, it was quite evident that amputation offered the only chance of prolonging life; and such a conclusion was not arrived at until a very searching examination of the chest and abdomen was instituted, and the organs in each pronounced healthy. Before having recourse to any such measure, it was imperative to try and build up the sinking powers of life by palliative local treatment, the judicious administration of medicine, and the exhibition of nutritious diet. The following were the means employed towards the furtherance of these objects:—The tension of the parts round the joint, as already noticed, being extreme, I freely incised the integuments over its anterior wall and in front of the patella; a large quantity of unhealthy fetid pus escaped. On pressure being exerted upon the sides of the joint, a continuous stream of matter flowed from its interior by a very circuitous route along the outer wall, and discharged itself by the wound inflicted after this incision; a splint was next placed

along the posterior surface of the limb, and fixed above and below, the knee being left exposed for warm applications, &c.; pillows on either side propped it up so as to prevent the least degree of motion. The powers of life were strengthened by the administration of quina and small doses of mineral acids, the nightly exhibition of sedatives, particularly the preparations of morphia, and lastly, by the judicious apportioning of food and wine to the enfeebled assimilating powers. In a short time the influence of this combined treatment was strikingly manifest, and produced a marked appearance for good; and in sixteen days after the patient's admission I considered him in a favourable condition for the removal of the limb. On the morning of April the 15th I proceeded to operate in the following way:—The patient was placed under the influence of chloroform, and the femoral artery was compressed at the groin. Standing on the outside of the limb, and lifting the muscles on the anterior aspect of the thigh with my left hand, I entered a long catlin below the junction of the lower and middle thirds of the thigh on its outer side, and, thrusting it through in front of the bone, cut a flap downwards. I then transfixed, from the same point, passing the knife behind the bone and carrying it downwards so as to form the posterior flap, about two inches longer than the anterior. The flaps, being thus formed, were drawn up by an assistant; a few touches round the bone permitted this effectually, while any irregular fibres that remained close to the bone were divided by the knife being swept in a circular manner round it. The bone was next cut in a semicircular manner by the saw which I have invented,—and which I may here state I prefer in all amputations. It may be asked, what benefit arises from cutting the bone in this way, when it is well known that after a time the sharp edges are removed, and the bone rounded, and even sometimes expanded? I grant all this; but by removing the sharp edges in the first instance, I am convinced irritation of the muscles is prevented, and consequent spasms averted; while, at the same time, at the deepest part of the wound, the bases of the flaps can be applied more accurately to each other than they possibly could be if the bone be preserved with its abrupt edges. (For further advantages resulting from the use of this saw, I must refer the reader to this Journal for August, 1851, where the instrument is figured, and a description of it given.) The femoral artery, the terminating branch of the profunda, and six other arteries, were ligatured; warm sponges being applied, and no other vessel showing a tendency to bleed, the flaps were brought accurately together, and retained so by eight points of suture and adhe-

sive straps. A bandage was applied from the waist downwards, and a compress to support the posterior flap. The limb was removed, and the femoral artery secured in less than a minute; in a few minutes more the patient recovered consciousness; and so perfect was the action of the chloroform that he had no remembrance of what had been done. Wine was administered after, and when the patient was in bed about a quarter of an hour, a full anodyne given.

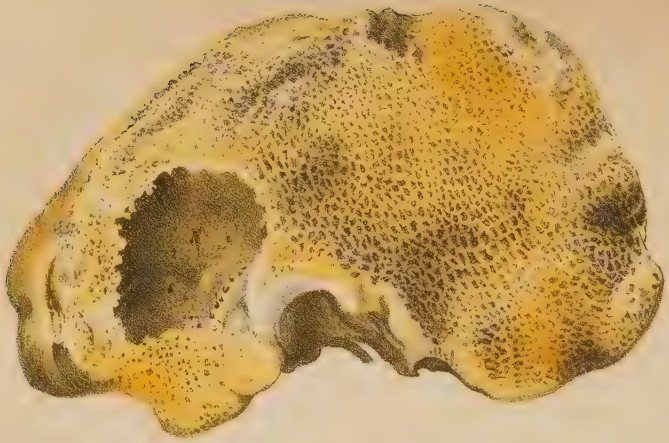
3 P.M. There has been no oozing of blood, and no pain in the stump of any amount.

16th. Slept all night; no startings in the stump; patient felt great relief from the absence of the limb; countenance cheerful; bowels gently freed, and urine in natural quantity; tea; eggs; wine, four ounces; and a full anodyne at night.

19th. I carefully dressed the stump: flaps lying nicely in contact, and united to a considerable extent; no redness or tension about the sutures, so they were suffered to remain; reapplied adhesive straps, &c.

20th. Removed the stitches; the greater part of the flaps united, while from the internal part of the wound a small quantity of dark unhealthy pus could be pressed out. The patient had but little sleep, and was greatly depressed. It is not necessary to follow up the daily report, but a train of symptoms were ushered in which left no doubt upon my mind that purulent absorption had taken place. The symptoms closely resembled those present in the case of Latuine; they gradually progressed up to the period of his death, on the 28th of the month.

Appearances of the Knee on Dissection.—Numerous sinuses passed around the joint in various directions, more particularly along its outer wall, which communicated with the cavity by a large opening towards the inner side, about the size of a shilling; its edges were irregular and jagged, and by this aperture the joint relieved itself, and diffused its contents beneath the surrounding integuments; from this source was the matter derived that caused the fluctuation in front of the patella. The colour of the pus contained within the joint, and that pervading the sinuses, was of a dark-greenish hue, and of thick consistence. The synovial membrane, the crucial ligaments, the lateral ligaments, were entirely destroyed; the encrusting cartilages of the bones entering into the articulation were altogether removed, and even the cancellated texture of the bone was destroyed, to the depth of some lines in each. On examination of the joint, a full explanation was afforded "why the tibia did not drop backwards, and why there was no lateral



displacement permitted." To explain the matter, it is necessary to go back to the time when the disease was in an earlier stage: when the cartilages were being progressively removed, nature made the attempt to arrest the process over the inner condyle of the tibia; as soon as its cartilage was destroyed, eburnation of the exposed surface was effected to about the size of a sixpence; while this point was rescued from disease, destruction continued around, and removal of the cancellated tissue of the bone, to the depth of nearly an inch. The osseous matter supporting the polished point was condensed in structure, and this spud of bone projected upwards from the tibia more than an inch. The under surface of the articulating end of the femur was entirely deprived of cartilage, and presented towards the inner condyle a cup or cavity, which received the projecting nodule of the tibia; when placed in that relationship, one within the other, which they held during the life of the individual, the remaining cancellated surfaces of both bones lay accurately in contact, and afforded evidence why the bones were not displaced. This locking of the bones one within the other was maintained by the spastic rigidity of the muscles sending down their tendinous insertions around the joint. That the pressure on the opposed surfaces was continuous and prolonged is, I think, amply borne testimony to by the way in which the hardened piece of the tibia effectually procured for itself a hollow bed in the cancellated tissue of the femur. The specimen is so rare, and the attendant results of so much importance in a practical point of view, that I have thought it well to represent the abnormal arrangement by the accompanying engravings[a].

Figure 1 shows the projecting nodule from the tibia, the bone being viewed on its inner surface; while the second figure represents the cavity for its reception in the under surface of the femur.

The next case is one of

Extensive Wound of the Elbow Joint, with separation of the external condyle and articulating head of the radius, from the lower extremity of the humerus, followed by recovery, with partial Anchylosis.—This case has been referred to in the records of the Surgical Society of Ireland. Thomas M'Gill, aged nineteen years, by trade a coachmaker, was admitted into Mercer's Hospital, under my care, on June the 10th, 1852. *History.*—The patient

[a] The preparation, and the original drawings made by Mr. Connolly, are in my possession.

and his fellow-apprentice had a quarrel, when the latter took up a large knife and made a blow at him, inflicting a very severe wound on the right arm. He was brought at once to hospital, where I saw him immediately after the accident. He was labouring under very severe shock, manifested by coldness of the surface, rigor, and blanched countenance. He had lost a great deal of blood, and was then bleeding profusely. The hand of an assistant, placed steadily over the axillary artery, checked the hemorrhage, and I proceeded to examine the wound. It commenced about three inches above the joint, on its outer and posterior aspect, and with such violence did the knife take effect, that the external condyle of the humerus, together with the capitulum on which the head of the radius moves, were split off, everted, and protruding through the wound. From this it will appear how extensively the joint was laid open. The edges of the wound gaped so far apart, that the articulating surface of the radius was completely exposed, and its anterior edge marked by the knife, clearly showing that its downward direction was here checked, its force being nearly expended; and then meeting with less resistance, it passed forwards, dividing the supinator and extensor muscles, forming the outer prominence of the forearm. On everting the edges of the wound, I tied two large arteries above the joint, which were giving blood very freely, and secured the radial recurrent below; the hemorrhage then ceased. The piece of the humerus, split off and thrust forward through the wound, was still attached by some fibrous bands behind and externally, so I restored it to its natural position, and then brought the edges of the wound together with adhesive straps, having previously sealed them up with collodion, and placed the limb in the semiflexed position, on pillows, the hands being raised so as to favour the returning venous current. Heat was then applied to the feet, and a warm carminative draught with opium administered.

9 P. M. Reaction fully established; skin hot, and pulse bounding; did not complain of pain in the joint; ordered a full cathartic enema immediately, and in two hours after, an opiate draught, with laurel water.

12th. Restless during the night, and referred pain to the posterior and outer side of the arm above the wound; pulse full and bounding; skin hot; twelve ounces of blood were directed to be taken at once from the arm, and when the bleeding had ceased, stupes to be applied; three grains of calomel, with a grain and a half of powdered opium, were given, with the intention of acting as a direct sedative.

14th. Slept comfortably during the night; pulse quiet and soft; bowels copiously freed, and tympanitis gone; the blush of redness and the pain above the wound removed to the posterior part of the joint; imperfect suppuration established, so for the first time I removed the straps of adhesive plaster, but without lifting the limb from the pillow, or stirring it from the position which it had maintained from the very first. I slipped a small perforated pad under the elbow, so as to receive the internal condyle, and thus prevent stripping; a small light poultice was placed over the seat of the wound, a few straps of adhesive plaster being first applied, not with any increased tension or straining of the lips of the wound, but with the object of supporting the soft parts, which for a short distance above and below the joint had united by the first intention. Synovia, mixed with imperfect pus, was freely discharged from between the bones on the removal of the dressings. He was ordered five grains of hydrargyrum cum cretâ, with four of Dover's powder, every third hour.

18th. Up to this time the powder has been continued; a large flow of synovia and pus issue from the joint; at 3 P.M. he was suddenly seized with darting pain in the joint of a very severe character, and coming on without any assignable cause. Six leeches were ordered at once to be applied above the joint, and warm stupes to be kept assiduously to the entire limb; a full opiate was also given.

19th. Has had some sleep, but refers great pain to the joint, darting up and down the limb. As inflammation most insidiously again threatened, it was prudent to increase the action of the mercury. He was therefore ordered to continue the powders as before.

July 1st. Since last report little alteration in the symptoms; limb but little improved; tonics and acids have been administered to check sweats, &c.

4th. This morning I placed the limb in a well-adjusted case, made of gutta percha, lined with wadding. It was so constructed as to preserve the forearm immoveable at a right angle with the arm, and retained by bandages. The arm thus made up was supported in a sling suspended from a framework over the bed, and the enfeebled creature was propped in the sitting posture by a bed chair. He experienced the greatest comfort from this arrangement. No motion of the trunk produced pain in the arm, it so readily waved backwards and forwards on the slightest impulse.

5th. Has had little sleep; fainted twice; pulse very feeble; the limb was quite free from pain, which he attributed to its

new and easy position; all apprehension of hurting himself on moving in the bed was removed by the simple contrivance adopted.

15th. Going on most favourably; pulse quiet; no sweats; limb free from pain, and dressed every alternate day; had his clothes put on to-day; kept him reclining on the bed with the arm supported and suspended as before; ordered to-day an ounce of cod-liver oil three times a day, and to continue the quina mixture.

17th. Wound nearly closed up; fungous granulations all gone; anchylosis rapidly progressing; no discharge now from the joint; the limb supported as before in the gutta percha case, and, though the patient was dressed and lying supported on the outside of the bed, the weight of the arm was so great that the sling suspended from over-head could not be dispensed with.

22nd. Gaining strength very rapidly; so well did he feel on this day that I was enabled to place the limb in a sling suspended around his neck, and had him carried to a couch in the garden.

31st. Within the last few days he had rapidly gained strength, and was able to walk about the ward and into the garden; wound just healed; all the textures round the joint were thickened from the results of inflammation; but, considering all things, the most sanguine expectations could not have anticipated a more favourable result.

August 2nd. On this day he was dismissed from the hospital, the wound being entirely healed.

September 20th. Since his dismissal from hospital he has gained considerable motion in the joint. And now, the period at which I write, nearly the full power of flexion and extension have been obtained.

The details of the foregoing case are so essentially practical, that I do not hesitate in placing them on record, in warm anticipation that they may stimulate the younger members of the profession to exertions equally as effectual to the saving of life and limb. Wounds of joints are at all times to be dreaded, and watched with the greatest carefulness on the part of the surgeon, inflammation is so insidiously set up and progressive in its effects, the danger being considerably augmented if injury at the same time be inflicted on the articulating surfaces of the bones, as occurred in this instance. From the earliest period an attempt was made to bring about union by the first intention. After the hemorrhage was arrested the piece of bone projecting through the wound was carefully restored to its

natural position, the cut surfaces placed in contact, and all retained *in situ* by the application of collodium and adhesive straps. I returned the piece of bone to its place in preference to cutting it away, because it was closely connected behind by the attachment of the triceps muscle, an attachment which I considered sufficient to preserve its vitality. If the piece had been smaller, and not so vitally adherent, I would have acted exactly as Mr. Lawrence did in a case almost parallel to mine. The case is given in the Lancet for May, 1846. The patient, a boy, aged 11, was admitted into St. Bartholomew's Hospital, his right arm being caught between two cog-wheels connected with machinery in motion. He was admitted a few moments after the receipt of the accident. The integuments on the outer surface of the right upper extremity, from the middle of the forearm up to the insertion of the deltoid, were severely bruised and torn. A deep lacerated wound extended through the skin and muscles down to the elbow joint, which was opened. The external condyle was chipped off from the humerus, and held only by a few tendinous and fleshy fibres. There was considerable venous hemorrhage, but the brachial artery not wounded. Mr. Lawrence removed the external condyle by severing with a scalpel the soft shreds which retained it. This case did well.

Another case, very similar, is given by Mr. Key, in which the integuments of the arm of a boy, aged 9, were severely torn. The elbow joint was laid open, and the internal condyle chipped off by a roller in motion. In this case the internal condyle was removed by Mr. Key, and the important articulation between the ulna and the humerus was destroyed. Yet the patient, too, did well.

If portions of bone be so far separated as to be connected only by a few tendinous fibres, they should, no doubt, be regarded as foreign bodies, and immediately removed, as their presence would only excite inflammation, and prevent the healing of the wound until discharged by nature.

In the management of M'Gill's case the antiphlogistic treatment was fully carried out; general bleeding when the inflammatory fever was at its height; local detraction of blood by leeches on the supervention of pain; the gentle administration of mercury; soothing applications to the limb, and the constitutional treatment modified according to the type of the fever present. There is one more point in the local management which I have left for special notice, and that is, the suspension of the limb at a suitable height in a sling. This I cannot pass over without most warmly recommending. From the very period when I had recourse to this procedure, many of the

patient's annoyances were removed, and he began visibly to improve. Not only was the inflamed part placed in the most favourable position for its returning circulation, but the motions of the patient were not so constrained or prohibited; he could turn partly to either side, and thus relieve himself from pressure. In this way the fatigue of lying was considerably lessened, and the irritation consequent on perpetual watchfulness removed; for on the slightest impulse the limb floated with its solid case suspended in the air. Again, when the patient was convalescent and lying dressed on the outside of the bed, propped up with pillows, the suspension of the limb in his emaciated and enfeebled condition, was of the greatest value, for the weight was entirely borne thereby.

Art. III.—*Observations on Spinal Irritation.* By Robert Law, M. D., Professor of the Institutes of Medicine in the School of Physic in Ireland, &c.

Until our physiological knowledge of the nervous system is more complete and perfect, we can have but little expectation or hope that our knowledge of its pathology will be other than very incomplete and imperfect. To attempt to determine the pathology of an organ before we are thoroughly acquainted with its physiology is obviously absurd and preposterous. Although we have with later years made great progress in the physiology of the nervous system, still much remains yet to be done before we can rest satisfied. What little success has hitherto attended the efforts to connect intellectual derangement with determinate definite cerebral lesion! How little proportion is found to exist between functional cerebral disturbance and material organic change! How often will the most extensive structural change of the substance of the brain be found after death, of whose existence there was scarcely a suspicion during life! And how little have the necroscopic examinations of lunatic asylums contributed to the pathological anatomy of the brain! Have not their results been mostly negative, at least yielding no satisfactory explanation of the derangement of the function in the alteration of the instrument? And if these efforts to connect derangement of mind with actual positive disease of its instrument have proved so unsuccesful, can we flatter ourselves that we shall be more fortunate in our endeavours to fix the pathology of other portions of the nervous system, with whose physiology we are at least as little acquainted? Have we any reasonable expectations that we shall find

in the spinal marrow and in the ganglionic nerves material explanations of functional derangements which we vainly look for in the brain? If, while we understand the physiology of the brain better than of any other portion of the nervous system, and if it lend itself more readily to post-mortem examination than many other parts of this system, and if, notwithstanding these advantages, we have made so little progress in the pathology of the brain,—I fear we have much to learn, and that through much difficulty, before we can attain to any certainty in our knowledge of the pathology of the rest of the nervous system, or unsettle the very general impression that nervous and imaginary disorders are one and the same thing.

Many of the derangements of the nervous system afford but rare opportunities for the investigation of their pathological nature and character, in consequence of their rarely proving fatal; but we have a means of ascertaining their nature, and upon which we can rely with at least as much, if not more, security and confidence than we can upon the evidences on which we ordinarily depend for our information, viz., the influence and effects of remedial agents upon them. In proof of this I would advert to the history of delirium tremens. The phenomena of this disease so closely resemble those of inflammation of the brain, that the two diseases were regarded as so closely allied to each other, if not identical, that they must needs be treated in the same way,—that the antiphlogistic was the appropriate treatment for both. The failure of this treatment when applied to delirium tremens proved that the analogy between the two affections was more apparent than real; that there must be some essential difference between them to account for the different results of treatment. Opium was now employed, and its success was as signal and remarkable as was the failure of the antiphlogistic treatment. Its known influence on the nervous system and its disorders served as a kind of test and proof that delirium tremens was not a true inflammation, but one of the diseases of the nervous system over which it exercises a special control. The treatment of this disease, and the light thrown upon its true pathological nature by this treatment, led to a more careful examination of other similar diseases, and such examinations in many cases issued in similar results; they were no longer considered as inflammations, nor as requiring the treatment adapted for inflammations. It is now many years since my valued friend, Dr. George A. Kennedy, and myself, when we were both attached to the Dispensary in Meath-street, were requested by the apothecary of the insti-

tution to visit his wife, who had been thrown from a car three days before. She was a woman of about forty years of age, of a slight, delicate configuration; we found her in a state of great nervous excitement; she complained of pain on pressing the right side of the abdomen between the umbilicus and the ilium; the pulse was 140 in the minute; she had no sleep for two nights. Her husband considered the accelerated pulse and the other phenomena to be symptomatic of peritonitis. Dr. Kennedy and I viewed them differently, and regarded them rather as the effects of the nervous shock; but as we knew there was an old physician in whom our friend had great confidence, we readily acceded to his wish that he should meet us in consultation. The treatment Dr. Kennedy and I suggested was, a few leeches to be applied to the painful part of the abdomen and afterwards fomentations; that she should have thirty-five drops of laudanum, in camphor julep, as a night draught, and if this failed to procure sleep, that she should have another draught of twenty drops. The old physician met us before our suggestions were adopted. We explained to him our view of the case, and the treatment we had proposed. He differed from us, and regarded the case as one of peritoneal inflammation, and advised a bleeding from the arm to the extent of sixteen ounces. Dr. Kennedy and I could not enter into his views either as to the true character of the symptoms, or as to the treatment. We were left to adopt our own view and treatment. A single draught procured sleep for our patient. The next day we found her in a quiet, tranquil, composed, state. The pulse had fallen to 90 in the minute. The abdominal tenderness had quite disappeared, and she now quickly recovered.

Formerly inflammation was regarded as everything in disease: it was its Alpha and Omega; its *primum movens* and *ultimum moriens*, and the reason is obvious enough, namely, because the phenomena of the circulation are more palpable and appreciable than those of the nervous system, and, therefore, lend themselves more readily to investigation. Besides, our knowledge of the circulation was much in advance of our knowledge of innervation, and, therefore, we were better qualified to understand its derangements. How materially has this difference in our knowledge of the circulation and innervation influenced our pathological views of fever! All the early phenomena which exhibit themselves in the nervous system are passed over, and the disease is dated from the time that the circulation is involved. The nervous system is now assuming

the prominent place in pathology to which its importance entitles it; and the danger now seems to be lest its pretensions should be stretched too far.

It is quite true that the nervous system may be disordered without involving the circulation, still the two systems are so intimately connected that they very soon affect each other, and the result is a complicated pathological condition in which the nervous and vascular elements exist in various proportions, and to which a treatment is to be applied modified by the varying proportions of the two elements. It was this that first suggested to me the combination of tartar emetic and opium in the treatment of delirium tremens, and which Dr. Graves afterwards applied to the treatment of fevers resembling delirium tremens.

Since attention has been attracted to the pathology of the nervous system, a peculiar affection—from the frequency with which it is associated with tenderness experienced on pressing some portion of the vertebral column—has been designated, spinal irritation. Now there is no subject that has given rise to more discussion and vain controversy than the subject of spinal irritation, its too zealous advocates putting forward for it unreasonable pretensions, while its opponents go to the extreme length of ignoring its existence altogether, or at least of refusing to it any more settled resting-place than the imagination of nervous ladies, who for want of real ills must needs create artificial ones. I most freely admit that the investigation of these cases demands the extreme of caution, and the representations of the patients must be received with considerable wariness, as there exists a strange proneness, not alone to the *suppressio veri*, but to the *assertio falsi*. I have known the case where the patient, on the recovery of her health, loathed herself for the falsehood she was conscious of when under the influence of the disease. Medical history teems with these cases of deception and fraud. The most remarkable one of this kind that came under my immediate notice was that of a young female, who had always before maintained a character for strict truth, when she began to complain of dysuria and distress in the region of the bladder. There were many persons interested about her, and medical advice was provided. Her medical attendant discovered that she had for some time been introducing pieces of brick into the bladder, while she at the same time exhibited other pieces which she affirmed she had passed from the bladder, but whose size falsified her statement, as it was quite impossible that they could have made their way through the

urethra. She persisted in her false statement, although threatened with the operation for stone in the bladder.

Of the reality of such a disease as spinal irritation I have no doubt, although I question the propriety of the designation. The tenderness on pressing the spine is accidental, and often absent in the most unequivocal cases of it. If ever there was a disease of which it might be justly said, "*Quo teneam nodo mutantem Protea vultus*," it is this. There is not an affection that it will not simulate. I have had the same individual at one time exhibiting symptoms that made me dread cerebro-spinal meningitis; at another time with such palpitations and irregular action of the heart, that it became a question whether there was actual cardiac disease or not. At another time another organ became affected, until all in their turn performed their part in the pathological drama.

In a previous communication in this Journal I have already stated the particulars of a very interesting case, and which, as they bear very directly on my present subject, I shall here repeat. The case was that of Eliza Warren, aged 26, of a nervous, irritable habit, who had been under my care in hospital for hysteria, in various modifications and forms, and often simulating the most serious organic disease. At one time pain in the left side of the chest, dulness under the clavicle, and feeble respiration in this situation, with hemoptysis, excited the suspicion of phthisis pulmonalis in a more than nascent state. A disappearance of all these phenomena quieted alarm. At another time she had uterine hemorrhage, so profuse and so prolonged that it was supposed that there must be some organic disease of the uterus. This likewise disappeared, and was succeeded by some other affections of a more distinctly nervous character, which served to explain those that preceded. On one occasion we received her into hospital in a state of great nervous excitement, caused by her having been rudely laid hold of by a soldier in the street as she was returning home late at night. I had often seen her in nearly as great a state of excitement before, and relieved her with camphor and ammonia. However, her present attack proved less tractable than those which had preceded, and exhibited a novel feature. At a late hour of the night of the day on which she was admitted into the hospital she awoke, and attempted to speak to the patient that lay in the bed beside her, but, to her utter dismay, she found she could not articulate. When I visited her the next day, I found her perfectly dumb. In vain she tried to speak, literally—*vox faucibus hæsit*, she could only make signs.

The tongue was firmly pressed against the roof of the mouth; and she gave me to understand by signs that she felt pain proceeding from the back of the head to the tongue, which I concluded to be in the course of the lingual nerve. Connecting this new and strange phenomenon with others that she presented at the same time, and regarding them all as nervous, I applied to the old and often successfully tried remedies in her former attacks, viz., camphor, valerian, valerianate of zinc, castor, &c., but now they quite failed; and upon their complete failure I thought of giving her mercury with caution. I divided six grains of calomel into twelve parts, and directed that she should have half a grain every second hour. The six grains produced profuse salivation. Immediately her tongue became perfectly free; it was no longer pressed against the palate, and she could speak quite plainly; her sore mouth was the only impediment to her distinct articulation. After the salivation, which was profuse, had ceased, I gave her tonics, and in a short time she left the hospital quite well, and soon went to service. The immediate recovery of her speech, on the mouth becoming sore, warranted the conclusion that the one was the effect of the other. But, it might be objected, is it safe to rest a conclusion upon the result of a single case? Might it not have been a *post hoc* rather than a *propter hoc?* I had, happily, the opportunity of meeting this objection in the most satisfactory manner, and with an argument that could not be resisted, by the same individual, while in service, becoming the subject of a similar illness, and with the same inability to pronounce an articulate sound. The family in whose service she was, and who knew nothing of her previous illness, sent her into another hospital. She continued there speechless for *seven months.* During this time she underwent a great variety of treatment, but without any benefit. She at length left the hospital by stealth, and came into Sir Patrick Dun's hospital, under my care. She was affected exactly in the same way as she had been when under my care before. I at once resorted to the mercury, and ordered for her five grains of hydrargyrum cum cretâ thrice daily. On the third day her mouth had become sore, and on the same day her speech was restored. On both occasions the salivation was profuse.

This case, not less remarkable for its twice exhibiting the unusual phenomenon of loss of speech than for the immediate disappearance of this phenomenon on the system becoming affected with mercury, and that, too, after the failure of all those remedies which are usually employed in what are designated nervous disorders, suggests to us many important considera-

tions. It naturally leads us to suspect that there may be more of real positive organic lesion, lying at the root of those so-called nervous disorders, than is commonly imagined. Certainly, had not such a suspicion crossed my mind, I never should have thought of having recourse to mercury in this case. Who, in fact, would employ this remedy in those diseases which are understood to be strictly nervous in their character? And what more valuable and more efficient remedy than it have we in those cases where we have actual lesion of the nervous structure? The subject of the preceding case ultimately fell a victim to scrofulous suppuration of the kidney. May not this fact serve to stamp those supposed nervous disorders with an organic character? If this example affords ground for suspecting organic lesion in cases apparently purely nervous, some, perhaps, who will read this record will be reminded of a case the exact opposite of it, in which aphonia was present, and in which the phenomena so closely resembled laryngitis that the operation of tracheotomy was performed. The aphonia proved to be purely hysterical. This case, as well as the one which I have narrated, was an hospital patient.

I have had one of these nervous cases under treatment for many years, which has served as a pathological study. She is a lady of great natural intellectual endowments, and of a most cultivated mind. When fourteen years of age she suffered from violent headach, which was attributed to her too close application to study, and to her mind being too much exercised. She was directed to relinquish her studies, and, in consequence of the light increasing her headach, she was kept in a dark room. At this time she was placed under the care of St. John Long, in London, and was subjected to his *rubbing out* for two years. She was not conscious that she derived any benefit from this treatment. Her headach continued up to the period of her marriage, nor did it then cease; in fact, she could scarcely say she was ever quite free from it. She bore five children, and got well over all her confinements. She had four daughters and one son. The death of her infant son, from scarlatina, gave her a tremendous shock; and to this sad event she attributed the complete break up of her health. The natural energy of her character sustained her under physical suffering, and she never yielded until she could not help it. She had been under the care of different medical men, both in England and Ireland, and for various illnesses, and from the treatment that was generally employed in these we may infer that they were looked upon as inflammatory in their character. The condition of her teeth tells a sad tale of all the mercury she took; while

the countless leeches that she says were at different times applied when she experienced pain, afford further evidence of the view that was taken of the nature of her illnesses. It is now about eight years since this lady consulted me. She complained of fever coming on every evening, and completely depriving her of rest. She was extremely weak and emaciated. She had been for some time under homœopathy, from which she said she had not derived the slightest benefit. Although night after night she got no rest, still she was refused any hypnotic.

The homœopathists repudiate narcotics under any circumstances. When a patient of mine, whose case I pronounced hopeless as regarded ultimate recovery (it being a case of aneurism of the abdominal aorta), but whose sufferings were greatly mitigated by morphia, applied to a homœopath, he promised the poor fellow a cure, and required, as a first step in the curative process, that he should discontinue his morphia. He left off the morphia for one day, but his sufferings were so great that he would no longer dispense with it. It afforded him the only relief that the nature of his disease admitted. Post-mortem examination confirmed my diagnosis of aneurism of the abdominal aorta.

Having less scrupulosity than the homœopaths on the subject of narcotics, I did not hesitate to allow the lady a small dose of morphia, which procured her most comfortable sleep, to which she had been long a stranger. I also directed her tonics, under the use of which her general health underwent an improvement, which, unhappily, was only temporary. She removed to the country, which she considered always disagreed with her. She became so ill from diarrhœa that she was brought back to town. She now became the subject of most distressing attacks of syncope, with very irregular action of the heart, so that her friends were afraid of heart disease. I did not share in their alarm, but to quiet their apprehensions suggested that Sir Henry Marsh should see her in consultation with me. He took the same view of the irregular action of the heart that I did, viz., that it was purely nervous. She continued to have these syncopic paroxysms for a considerable time. Nor would I pronounce them pure attacks of syncope,—they had something of catalepsy in them. When she was thus affected, she often complained of pains proceeding from the spine along the sides of the chest, and which gave her the sensation as if she were tightly bound round the body with cords. I generally could detect a painful spot of the spine from which these painful sensations seemed to radiate. A very few leeches applied there generally afforded relief. I also found great ease to

follow the application of tincture of iodine to the track of the pain. While this portion of the spine was the centre of irritation, the lungs also occasionally became the seat of painful congestion, for which I sometimes deemed it expedient to apply blisters to the sides. Their application developed a remarkable feature in her case, viz., an extreme susceptibility of the influence of blisters—an extraordinary hyperæsthesia of the cutaneous surface. A common blister, covered with silver paper, rose in less than two hours. Nor did this occur but once. Whenever, while my patient was in this state of health, I had occasion to order blisters, they invariably vesicated within the same short period. Nor can there be much difficulty in understanding why this should be the case, when we reflect upon the irritable state of the cutaneous nervous fibrils in this peculiar morbid condition, contrasted with what it is in their normal state. I shall afterwards have to advert to this when I come to speak of this patient in another stage of her illness. I should here observe, in proof that this sensibility of the skin to the influence of blisters depended upon the then morbid state of the patient, and not upon any peculiar constitutional diathesis, for when afterwards her health had improved, and she was affected with pneumonia, and a blister was applied to the chest, it did not rise more in eight hours than it did formerly in two. It is fair to infer that the difference in the patient's health was the modifying circumstance which influenced the effects of the blisters.

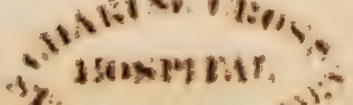
When the faintings subsided, and the heart's action became somewhat more regular, she was affected with abdominal pains, which, she said, were exactly the same as those she experienced formerly, and for which she took so large a quantity of mercury, and had so many leeches applied. These pains were precisely of the same nature as those which she felt along the sides of the chest. She complained much when the abdomen was gently pressed, but felt much less when stronger pressure was used. This fact in itself distinguished between this pseudo peritonitis and true peritonitis. I applied a few leeches to the spine, with much benefit; and derived the most decided advantage from the employment of opiate stupes, and from tincture of iodine applied to the painful parts. I here take occasion to recommend, as strongly as I can, the tincture of iodine as a local application in neuralgic affections. I have tested its virtue on many occasions, and have seldom found it to disappoint. Its influence seems to penetrate more than the ordinary counter-irritants employed. The organs most frequently affected when the portion of the spine corresponding to the ab-

domen was engaged, were the uterus and bladder. The uterus often became so congested and so large, that a superficial examination would have led to a suspicion of pregnancy. But this state of the organ would disappear as suddenly as it came on. Dysuria was a very constant symptom. While the patient suffered in this way, she underwent extreme emaciation. Morphia procured her refreshing sleep; if she slept without it she was more fatigued than refreshed. She often had to take a large quantity of this remedy, but it never produced even an approach to narcotism.

It is, in fact, peculiar to this particular morbid condition that if it does not render the system altogether insensible to the influence of opium, it at least induces an extraordinary tolerance of this drug. I knew one such case, in which the patient took nine grains of muriate of morphia daily for three months, without being ever narcotized, and was able, without inconvenience, to submit to the remedy being gradually reduced to the smallest quantity ordinarily administered.

To return: my patient had very imperfect use of her limbs; she could only walk about her bed-room supported by a stick. In the course of her illness it was often suggested to me by her relatives, who all felt a deep anxiety about her, "Might there not be some disease of the spine to account for her very peculiar symptoms?" I could always trace this suggestion to a surgical source. However, to satisfy their minds on the point, I was too glad when it was proposed to me to consult with my valued friend, Mr. Cusack, whose deep experience both in medicine and surgery—while it gives a high value to his opinion on any and every point connected with our profession—made me especially desirous to have it here, where I had a confidence in the correctness of the view I had taken of the case, and was equally confident that he would share in my view, and thus ignore the surgical character of the disease, to which I felt it had not the slightest pretension. Mr. Cusack's opinion completely coincided with mine, both as to the nature of the disease and as to the treatment. I heard no more suggestions of inserting issues along the spine, or firing, or keeping up a succession of blisters,—a practice which, pursued in like cases, has inflicted an injury on our profession that it will not readily recover.

By tonic treatment this patient wonderfully recovered. She completely lost her headach, from which she had not been free since childhood. She now never had a fainting fit, nor any abdominal pains. She became stout in her person, and all the functions were duly performed. She could



walk also for some distance; but unhappily, in the midst of this improvement she met with an accident, which prevented her making way in this respect. She slipped while stepping out of her carriage, and hurted her back. This materially interrupted her amendment; still, she confesses to have attained to a state of health and comfort which she never knew since she was a child.

I could multiply such cases, but have selected the preceding as a type or specimen. There is one feature of it that I omitted to mention, viz., the frequency with which it presented a close resemblance to intermittent fever, going through its regular paroxysms of cold, hot, and sweating stages. I am persuaded the more we compare these two affections, the more nearly shall we find them to be allied to each other. All the phenomena of intermittent fever bespeak it a neurosis.

That there is such a disease as spinal irritation I firmly believe. I further believe that there are two forms and modifications of this disease, as different in their nature as they are in the treatment they require. That one is of a constitutional origin, and is often induced by moral causes operating on the spinal marrow, which we may regard as the emotional department of the nervous system, and propagating their disturbing influence to the different organs situated along the spine. That different circumstances and causes influence the secondary organic affections, such as natural or acquired weakness, or morbid susceptibility in any of these organs. Period of life, too, according to which one organ may have its function more exercised than at another period, will serve to give a direction to this reflected morbific influence. The peculiar desultory or intercurrent character of this modification of disease is its characteristic feature, and with this I would connect its comparatively harmless character. It does not dwell sufficiently long in any portion of the spine to allow time for actual disease to establish itself in the contiguous organs. It changes its place too rapidly for this, and this shifting, versatile character has created the difficulty of bringing it within the limits of any general description. This is the reason, too, why its true pathology is so little understood, as it so rarely supplies material for post-mortem examination.

As this is essentially a constitutional disease, to which the local organic affections are mere accidents, so the treatment should be constitutional, with a due regard, however, to the local affections. Its changeableness and inconstancy preclude me from entering into the details of treatment, I can only deal in generalities. While the appropriate treatment is essen-

tially tonic, we may employ local depletory measures with great benefit. I have remarked, in my observations on the fever that prevailed in Ireland in 1847–8, how frequently symptoms of spinal irritation and most distressing pains in the course of the spinal nerves exhibited themselves, and how constantly these symptoms disappeared from the application of leeches to the spine, at the same time that the constitutional treatment consisted in the almost exclusive use of stimulants. I believe that these pains are, if I may so express it, an exaggeration of the feeling of *malaise*, so constant as an early symptom of fever, which I conceive to be a modification of the peripheral sensibility, dependent upon the state of the capillaries, which are probably in a too congested condition, and that the relief from leeches is due to the removal of this congestion. And although it may appear inconsistent and paradoxical to deplete and stimulate at the same time, yet these opposite means are really promoting the same end. The overstrained and overloaded vessels are relieved by the leeches, and acquire from the invigorated system additional power to act upon their diminished burden. I have found hot stimulating liniments rubbed along the spine signally useful in relieving this feeling of discomfort, which I attribute to their stimulating influence on the capillaries.

The other modification of the disease is when it is of local origin, and where the spinal affection is secondary to and dependent upon some organic lesion situated in the spine itself, or in some organ from whence it is reflected upon the spine, and thus simulates a case of original spinal irritation. I saw a remarkable case of this kind, in which an insidious process of caries of the vertebræ eluded the observation of one of the most careful surgeons I ever knew, and was not detected until palpable deformity had occurred. In this case the patient at one time laboured under the most distressing sickness of stomach I ever witnessed, and nothing seemed to exercise the slightest control over it. When it ceased, the patient suffered from violent palpitation of the heart and occasional hemoptysis. These, however, proved themselves more amenable to the influence of medicine. The patient ultimately attained to perfect health; the organs also resumed their normal regular action when nature had completed her cure of the caries.

It is beside my purpose to do more than to remark on the existence of this modification of the disease, and of the possibility of its being mistaken for original spinal irritation. But my main subject is spinal irritation as contra-distinguished from this, and for it I claim a special independent existence.

Before closing my observations, I would remark that the diagnosis of these two diseases has been obscured by the fact, that not unfrequently we have loss of motion of the lower limbs where we have least reason to expect it, viz. in the functional affection. I have a distinct recollection of a man, and not a very imaginative one, who was admitted into hospital, having lost the use of his limbs. He went upon crutches. He described a kind of fit, which he said seized him daily, and which he represented as a kind of *aura* rushing up from the stomach to the head, after which he got into a state of unconsciousness for some time. He was quite aware of the fit coming on. I ordered for him an antispasmodic draught, composed of camphor, ether, and ammonia, with directions that he should take it immediately when he felt the approach of the fit. He only took three draughts when the fits quite ceased, and he immediately recovered the use of his limbs. He went out of the hospital, and, having no further occasion for his crutches, left them behind him.

The preceding observations have been put together as a contribution of pathological material bearing upon some of the most interesting and important points in theoretic and practical medicine, viz., the physiology and pathology of the nervous system—a system whose investigation is attended with more difficulty than that of any other in the animal economy, and a knowledge of which must constitute the very foundation of medical science. Its difficulty and importance should stimulate our endeavours by every means that afford us the least hope of either directly or indirectly obtaining our great object. I entertain the most sanguine expectation that the results of anæsthetic remedies will contribute much towards this end, as I think I have proved that other therapeutic agents have cleared up and established the true nature of not a few pathological conditions to which they were applied, and wrested them from the obscurity which surrounded them.

Art. IV.—*A Notice of some Cases of Injuries produced by the Machinery of Flax Scutch Mills.* By William Moore, A.B., M.B., T.C.D., L.R.C.S.I., Surgeon to the Ballymoney Dispensary District and Bridewell.

Accidents of the above description have, as regards Ireland, been hitherto almost exclusively confined to the northern district, inasmuch as it has been the great field for the promotion of the growth of flax in this country: however, it is now be-

coming a more staple commodity, being more generally cultivated over the length and breadth of the land, as the following extract from the last Report of the Royal Flax Society of Ireland shows:—"In the present year there were 175,495 acres under flax in Ireland, being an increase of 29 per cent. over last year's crop. The increase in Leinster, Munster, and Connaught is 22 per cent. over last year, the amount of acreage under crop being 14,279." Injuries similar to those I am about to describe, no doubt, will be more or less entailed thereby on the inhabitants of those provinces, but I trust not to the same extent as has hitherto occurred in Ulster, where it is mainly owing to the question of perfection in the manufacture of the raw material being made of primary importance,—that of the frightful mutilation and frequent loss of life, from the imperfect construction of the machinery, of secondary import.

In order that my readers may the better understand how accidents are of such frequent occurrence in these scutch mills, I shall give a brief and, therefore, rather imperfect description of the dangerous and exposed arrangement of the machinery in the majority of these mills. In the old flax scutch mills, large wooden rollers are used for the purpose of bruising the fibre, and these are kept supplied by an attendant who is strapped to a staple at a certain distance, to prevent his being drawn into the machinery, and who opens the bundles of flax and suits it to the rollers. From the slightest inattention, the hand, under any circumstances so contiguous to the rollers, is readily drawn in with the flax, unless the precaution of the strapping is resorted to, and the loss of a limb, or, as too frequently happens, of life, is the consequence, as is shown by my third case. This imperfection is remedied to a considerable extent in the more recently constructed mills, in which there is a table, at one extremity of which the rollers are fixed, and at the other end the attendant stands and arranges the flax, consequently he is at a considerable distance from the rollers. The accidents from being caught in rollers are not so common as heretofore, owing to this recent improvement, which, I regret to say, is not sufficiently general, at least in this locality. The flax when rolled is subjected to the scutching machines, and these, even in the most recently constructed mills which I have had an opportunity of examining, are most imperfectly planned, as far as regards the safety of the men in attendance in this particular department, as is clearly proved by the frightful mutilation and loss of life which, I might almost say, occur daily. The scutching appliances are, as it were, wooden wings, attached to a shaft at certain

distances, and driven with considerable velocity; opposite each of these scutching machines there is an aperture where the scutchers stand, and their office is to subject the rolled flax as equably as possible to the action of this machinery. The hand is not more than a few inches, say two or three at most, from the machinery, and consequently comes in contact from the least inadvertence, and a lacerated wound or loss of the limb is the consequence.

The first case I have to report is that of R. C., aged about 55. In the month of November, 1852, I was sent for to visit this patient, and found him suffering from a fracture of the metacarpal bone of the index finger of the left hand, and a lacerated wound of the thumb, index, and middle fingers; the muscular substance was torn off the thumb, and the bone and extensor tendons were denuded. The wound of the fingers extended over the back of the hand. Under the use of cold water dressing, with oiled silk, and the occasional application of a linseed meal poultice, when the suppuration was profuse, the wound healed rapidly. In this case the patient's attention was casually distracted from his employment, and his hand came in contact with the scutching machine.

Case II.—A. M'H, aged 45, inadvertently placed his hand too close to the scutch wings, and received a large flesh wound, which extended diagonally across the back of the left hand. The bones were uninjured. Cold water dressing, as in the previous case, had a most happy effect in healing the wound.

Case III.—On the 30th of March, 1853, I was sent for to see S. O., aged 40, and found his jaws so locked that the point of a penknife could scarcely be passed between his teeth; rigidity of the masseters and of the muscles of the back; neck curved backwards, frothy saliva exuding from between the teeth; frequent severe paroxysms. All these frightful symptoms had supervened on a lacerated and contused wound of the right arm, extending from the tips of the fingers half way up the fore-arm, which had occurred on the 22nd inst., eight days previous to my seeing him. Notwithstanding the use of warm baths, turpentine enemata, and the exhibition of calomel and Dover's powder every second hour, as long as it could be introduced between the teeth, the patient died on the following day. In this case the patient had not taken the precaution of having his arm bound to a staple to prevent its being caught in the rolling machines, and consequently he received the mortal injury I have described above.

Case IV.—On October 3rd, 1853, I first saw this patient, and found a compound fracture of both bones of the left fore-

arm; there was no protrusion of the bones through the wounds. I placed the arm on a pillow, and applied cold water dressing and oiled calico; the wounds healed favourably. November 4th, I put the arm up in two straight splints, and on the 29th I removed both splints, when the arm was perfectly straight.

In this instance the patient, while carrying a bundle of flax, tripped up and fell, his left arm coming in contact with the scutching apparatus, which instantaneously inflicted the above injury.

Case V.—M. M'M., aged 40. This was a contused wound of the left hip, and a transverse lacerated wound of the adductor muscles, about three inches across and of considerable depth. The woman stated that her clothes caught in the rollers, and she was gradually being drawn in when the mill was stopped. She supposes the deep wound was caused by the cog-wheel of the rollers. Treatment consisted in the application of cold water dressing covered with flannel.

I could cite innumerable instances of similar injuries which have occurred in the practice of my neighbouring professional brethren, and in which the loss of one or both arms was the consequence,—death being the termination in many cases. The most formidable sequelæ in these injuries are tetanus, trismus, and mortification; consequently the employment of lint, bandages, and plaster dressings, which become dry and irritating, are particularly ill-suited for such injuries as I have described, in which there is severe nervous laceration. Cold or tepid water-dressing, covered with oiled silk, constitutes the most sedative and grateful treatment, and is easiest applied. In the majority of cases cold water is the most salutary application, inasmuch as it checks the hemorrhage, which is considerable in all these wounds, excessive in some. Where there is an extreme morbid sensibility in the injured part, tepid water, at a temperature between 85° and 90° Fahr., may be more soothing. When the suppurative stage commences I employ linseed-meal poultices, as they clear away the discharge more speedily; but once this diminishes I return to the cold water, to complete the healing process, which it invariably effects in an incredibly short time. On the whole, I consider there is no other treatment so well suited for such injuries, as, by keeping the parts moist, the morbid irritation in the injured nerves, which the dry dressings are so apt to excite, is allayed, and the fearful and intractable sequences mentioned above consequently anticipated.

Before concluding these remarks, I cannot help adverting to the absence of that due regard for the preservation of human

life which seems to prevail so generally in the manufacture of flax. In this trade the motto seems to be, "Salus populi ultima lex," as may reasonably be inferred from the subjoined extract from the Report of the Flax Society on scutching machines:—"From what they have witnessed, however, they believe that they shall have ere long to report upon a progress more or less complete towards the establishment of a process which shall be to a certain extent self-acting,—that considerable improvement will be thus introduced into the scutching process, tending towards economy of labour and increase of yield." Here the virtue of the machinery being self-acting seems to consist in "economy of labour and increase of yield:" the "salus populi" is not once even hinted at.

In an admirable Report of the Dervock Dispensary, by the Rev. Thomas Hincks, I find the following paragraph:—"The Committee feel called upon to direct attention to a Report of their medical officer, in which he states that scarcely a season has passed in the course of his practice without accidents, more or less severe, happening to persons from the bad construction of flax-rolling mills, whereby in some instances fingers, in others a hand, and in others an arm, have been lost: thus disabling the sufferers for life from using any industry, and generally causing them to become burdens upon the community. Two such instances have occurred in this district within the year; and the Committee cordially concur with their medical officer in recommending that some legislative enactment should be sought for, to place these mills under proper supervision."

Now, by the return of the Census Commissioners, it appears that last year there were 956 mills at work in Ireland, employing 15,000 persons: many more have since been erected, particularly in the south and west of Ireland, and, under these circumstances, it is high time that some decided steps should be taken in the matter to prevent an extension of those injuries, which heretofore have been almost exclusively confined to the province of Ulster, and which, in the majority of cases, either terminate the sufferers' existence, or maim them, so that they become helpless for life.

Art. V. — *On Luxation downwards and backwards of the three internal Metatarsal Bones, a form of Dislocation of the Foot not previously described.* By Jolliffe Tufnell, F. R. C. S. I., M. R. I. A., Surgeon to the City of Dublin Hospital; Lecturer on Military Surgery, &c. &c.

Through the extension of pathological investigation, cases of injury and disease are now brought under the notice of the profession which were formerly supposed incapable to exist. This remark applies to the subject of the present communication, namely, luxation of the metatarsal bones, a species of dislocation which, for a long time, was regarded as not possible to occur. Sir Astley Cooper, in referring to the subject[a], says: "The metatarsal bones I have never known luxated; their union with each other, and their irregular connexion with the tarsus, prevent it." Desault and Petit, as if not anticipating its occurrence, say nothing respecting this injury, whilst Boyer, contemplating the anatomical arrangement of the arthrodial articulations, strengthened as they are by surrounding ligaments, positively denies the possibility of this dislocation taking place.

Instances of the luxation of the metatarsus *upon* the tarsus have, however, been at intervals adduced, but so rarely that even recent writers have scarcely given the subject notice. Syme does not mention the accident[b]. Miller[c] merely alludes to it by saying: "One or more of the metatarsal bones may be displaced upon the tarsus." Ferguson[d] but remarks: "Such injuries must be of rare occurrence;" and Erichsen[e] only says, "Dislocation of the metatarsal bones, though exceedingly rare, yet does occasionally occur." At the present time (so far as I am aware) there are but six cases of this accident upon record. Two of these occurred to Dupuytren. They were first published in the Révue Médicale, for December, 1822; and have since been republished by the Sydenham Society. Two more came under the observation of Professor R. W. Smith, and are to be found in his admirable treatise on fractures and dislocations[f]. One is mentioned by South in his translation of Chelius[g]; and the last is related by Liston. These six cases had all one point in common,—they were displacements *upwards* and

[a] Dislocations and Fractures of the Joints, by Sir Astley Cooper, edited by Bransby Cooper. 1842. Page 339.
[b] Principles of Surgery.
[c] Principles and Practice of Surgery. 1853.
[d] Practical Surgery. 1852.
[e] Science and Art of Surgery. 1853.
[f] Dublin, 1847, page 224.
[g] Page 814.

backwards upon the tarsus; whilst that I am now about to record is, on the contrary, luxation in the opposite direction, viz., *downwards* beneath the sole of the foot, and is, I believe, the very first instance of the kind which has been brought under the notice of the profession. In saying this, I would by no means infer that it is the only case that has occurred; for happening under the agency of causes which must ever have existed equally as at present, we cannot but reasonably suppose that such accidents must have befallen individuals then as now, and that the want of a more careful record by surgeons of their several experience has alone prevented this peculiar dislocation from being known.

For the opportunity of witnessing it I am indebted to Mr. Dolmage, surgeon of the 7th Dragoon Guards, in whose regiment the accident occurred, and in the following manner: A trooper was returning off duty to Portobello Barracks, Dublin, on the 30th of November, 1851, and was walking his horse cautiously, the road being very slippery from frost. Whilst turning a corner, bordering upon the canal, the animal suddenly slipped, and fell with his whole weight upon the soldier's right leg and foot, crushing it against the ground. The horse rose instantly, the man remaining in the saddle, but suffering such agony that, unconscious of what he was doing, he reined the animal back into the canal. Here a violent struggle ensued, the horse eventually disengaging himself from his rider, who, assistance being at hand, was dragged out and taken to his regimental hospital close by. He was seen by Mr. Dolmage within a very few minutes of the accident having occurred, and before any considerable degree of swelling had taken place.

The foot was found to be much shortened, curved inwards and bent, the tarsus presenting a hard bony projection, overhanging the metatarsus, whilst deep under the plantar structures a second bony mass could be felt lying obliquely across the sole of the foot.

Reduction was at once attempted by placing the patient on his back, fixing the pelvis, flexing the leg upon the thigh, and extension then made by pullies attached to the extremity of the foot and to the toes, and persevered in for a considerable time, during which every possible movement of the metatarsus upon the tarsus, calculated to assist reduction, was resorted to, and leverage also made upon the dislocated extremity of the metatarsal bone of the great toe, where projecting in the sole, by means of a ruler being applied to it, and drawn upwards and forwards, whilst the clasped hand of a powerful assistant,

placed upon the instep, held that part downwards and backwards. As great a degree of force as it was considered justifiable to employ was expended in the effort at reduction, and continued for one hour, but not the slightest alteration in the position of the bones could be effected. Considerable effusion and ecchymosis followed, the latter extending up almost to the knee. Leeches, fomentations, &c., were prescribed, and the ordinary treatment for violent contusions had recourse to. Under this treatment swelling subsided; and ten weeks after the accident the foot presented the appearance represented in the cast[a], from which the annexed engraving was made.

All swelling and thickening had now disappeared, the outline of the tendons and every portion of the extremity being most accurately defined. In its general aspect the foot somewhat resembled a case of pes equinus, being considerably shortened and arched upon its inner border, the distal extremity of the metatarsal bone and first phalanx of the great toe being adducted, the last phalanx at the same time pointing somewhat outwards. The instep presented a normal condition from the malleoli to the extremity of the internal cuneiform bone, which projected in a sharp point, raising the integument, which was stretched over it, white and glistening like a tightly bent knuckle; from the outer border of the cuneiform bone ran an evident ridge, marking the division between the tarsus and metatarsus, and defining the line for Hey's amputation of the foot.

The measurements of the injured member, as compared with

[a] This cast is in the Museum of the Royal College of Surgeons, Ireland.

those of the opposite foot, were the following:—Length of the dislocated extremity from the point of the great toe to the heel, $9\frac{1}{2}$ inches; of the uninjured foot, $10\frac{1}{4}$ inches. Breadth of the dislocated foot across its widest part at the base of the great toe, $4\frac{1}{4}$ inches; of the uninjured foot, $3\frac{1}{2}$ inches. The extensor tendons of the injured foot stood out in strong relief, raising the toes; the tendons of the sound foot could be but indistinctly seen.

These were the principal appearances which presented themselves. The patient at this time had made no effort to walk, for upon the few occasions on which he had tried to use the limb, supported by crutches, he found a total inability to move otherwise than on the heel, in consequence of pain of a burning, lancinating character being produced in the sole of the foot whenever he attempted to throw any weight upon the toes, and to place the plantar structures on the stretch.

Six months afterwards I obtained a second cast of the foot, and again carefully inspected the limb. It had now become more inverted, and the projection in the sole was less evident, having been rounded and partly removed by absorption. The patient walked freely with a stick, bearing his weight on the outer border of the foot, as in a case of talipes varus, but he could not make any effort at progression, or even move, when the foot was placed flat upon the ground, from the same burning pain before referred to, and which he described as resembling the feeling that might be imagined to result from attempting to walk in a very tight boot with a marble under the sole of the foot.

In reviewing this case, there are three points deserving of consideration:—first, the mode in which the accident was produced; secondly, the causes which prevented reduction of the displaced bones; and thirdly, the principal signs which characterize this peculiar dislocation.

By reference to the details of the case it will be seen that there were two occurrences immediately succeeding one another, in either of which the accident might have taken place. First, the fall upon the road, and second, the struggle in the water, the foot being entangled in the stirrup. I consider, however, that the excruciating pain experienced from the former places it beyond doubt that it was then that the injury occurred. I conceive that the horse falling on his side, the man's foot was crushed against the ground inverted, with the heel fixed, and incapable of receding. In this position the three inner bones of the metatarsal range would form the segment of an arch, unsupported, upon which the stirrup-iron, coming to

act in a flattened direction (pressed horizontally by the superimposed weight of the body of the animal) drove these three bones downwards and backwards amongst the plantar structures beneath the tarsus, whilst the two outer bones, from resting on the ground, escaped detachment from their articulation with the cuboid bone, and in this way the luxation was produced.

Secondly, as to the prospect of reduction in dislocation of the metatarsal bones. The sources from which our experience must be derived upon this head are limited to the cases of Dupuytren, South, Liston, and the one now under consideration, those of Professor Smith being inapplicable to the purpose: they were discovered only after death, and under circumstances which prevented that surgeon from ascertaining whether reduction had been attempted or not; they cannot, therefore, be taken into account.

Five cases then present themselves. In three reduction was affected; in two all efforts failed. In Dupuytren's first case little difficulty was experienced in accomplishing the reduction by extension, with a bandage fastened to the foot, and firm pressure made on the dislocated bones. In the second, when a period of three weeks had elapsed, several attempts to reduce the dislocation were made, but all without effect. In these cases all the bones were displaced.

In South's case of luxation of the fourth and fifth metatarsal bones from the cuboid, they were, by continued extension, reduced with much difficulty.

In Liston's case of dislocation of the first metatarsal bone upwards, from direct violence, reduction also took place.

Judging from these, then, the conclusion might be formed, that, if attended to soon after the accident, reduction may without much difficulty be effected; but the case now under consideration shows that such is not the invariable rule. What, then, is the reason for this exception? I believe it to consist in the form of dislocation. In that upon the dorsum of the tarsus the bones rest upon a smooth and oval surface, with nothing to hinder traction forwards, excepting muscular retraction. In that of dislocation downwards beneath the tarsus, on the contrary, the proximate ends of the metatarsal bones become locked in amongst the inequalities of the tarsal; and that of the great toe, in particular, becomes immovably fixed behind the tuberosity of the internal cuneiform bone, wedged in the cavity which exists between it and the cuboid bone, and, held there by the peroneus longus tendon, it defies all efforts at reduction. Failing, then, in reducing this displacement, should we leave the

case to nature, or make a further effort after dividing the tendon of the peroneus longus muscle by subcutaneous section at the ankle? I am inclined to say, leave the case to nature, and withhold operative interference for this reason—that I believe it is not the muscular contraction alone, as I have stated, but the locking of the metatarsal bones in the cavity of the tarsal arch also, which prevents reduction.

Finally, we come to the signs diagnostic of this dislocation. The foot is shortened three-fourths of an inch or more, curved inwards, and at the base of the great toe broader than its fellow by an inch. The instep stands out sharply defined, with a sudden angular prominence and marked deficiency in front. The arch of the foot on its inner border is preserved, but the centre of the sole is occupied by the tarsal extremities of the displaced metatarsal bones.

The characters of this injury are very striking, and clearly indicate the nature of the accident, and, as has been stated by Professor Smith, are so marked that it is not likely to be confounded with any other injury of the parts. In describing dislocation of the metatarsus upwards, he says, "there is, it is true, a remarkable foreshortening of the foot, and the foot is greatly deformed, but the relations which the bones composing the ankle-joint bear to each other are undisturbed. There is no elongation of the heel, as in displacement of the tibia forwards; the foot, in front of the ankle-joint, is shortened to the extent of an inch or more, but the heel preserves its natural relation to the bones of the leg."

Art. VI.—*Remarks on some uncommon Forms of Tetanus.* By William S. Little, M. B., L. R. C. S. I.; Surgeon to the Sligo County Infirmary and Gaol, &c.

In the following observations I have no intention of introducing to the notice of the profession either new views of the affection described, or suggesting novel modes of treatment; I think the cases deserving of a place in the archives of our science simply as "Curiosities of Surgical Practice," and as hitherto unobserved, or at least undescribed, phases of morbid action. To follow nature in her eccentricities and irregularities, and to narrowly observe her deviations from the ordinary course of diseased manifestations, may be looked upon rather as an interesting and curious than a useful or practical study. But I think it cannot be denied, that in the hands of accurate observers and subtile reasoners, such studies

have over and over again been made subservient to practical purposes, and thrown a very useful light on some obscure subjects of every-day occurrence and interest. I do not pretend to say that I have derived any such benefit myself from them, and honestly confess, that an unlimited confidence in the reparative powers of nature has been almost the sole result of my experience in the following and many similar, though less striking, cases.

Case I.—*Anomalous Case of Traumatic Tetanus.*—Catherine Gannon, aged 22, was admitted into the Sligo County Infirmary, January 1st, 1851. She is a married woman, seven months pregnant of her second child; has hitherto been remarkably healthy. On the 13th of December, while stooping to brush her shoe, a dog upset a loaded gun standing against the kitchen wall, which, going off, discharged (she stated) a full charge of snipe-shot, wounding the upper part of the left thigh, external aspect, near the insertion of the tensor vaginæ femoris muscle, and the left mamma in two places. She was seen by Dr. Vernon, of Tubbercurry Dispensary, under whose care, until the supervention of the tetanic symptoms, the wounds progressed most favourably.

On Christmas and the following day, she felt her teeth a little sore, and on Sunday, the 28th, first perceived the muscles on the back of the neck rigid, and a sense of stiffness and difficulty in opening the mouth; the trismus has gradually increased since, and at present the teeth can be separated only to the extent of a quarter of an inch. She has no difficulty of deglutition, no sense of constriction of throat or œsophagus, *no pain anywhere;* the left shoulder joint is very stiff; abduction of the arm impossible, and the corresponding deltoid muscle and the muscles on the back of the neck alone affected with well-marked tetanic rigidity; the tetanic countenance slightly, but very sensibly marked; appetite good, but can only eat slops; bowels regular; skin cool, but very harsh and dry; pulse 80; *feels in perfect health.* Half a drachm of mercurial ointment was ordered to be rubbed in three times a day, and she was directed to take a table-spoonful of a diaphoretic mixture every third hour.

Jan. 2nd. She has sweated considerably, and for the first time since her accident. Bowels not opened since she came in; to have a castor-oil draught, and to continue frictions.

3rd. Bowels opened twice by castor-oil draughts; copious diaphoresis; in other respects as before. To continue frictions and diaphoretic mixture. 10 o'clock P. M. She has com-

plained for the first time of tetanic spasms of both shoulders, and the peculiar præcordial pain (diaphragmatic) of tetanus, which she describes as a sense of crushing of the sternum towards the spine; had once a sense of stiffness, or involuntary extension of both legs; the spasms have attacked her about once an hour since 7 o'clock P. M. Continue frictions, and let her have a draught of forty drops of solution of muriate of morphia, to be repeated in an hour if necessary.

4th. Tetanic spasm ceased at 12 o'clock. She only took one draught; slept well towards morning; tetanic spasms frequently attacking the shoulders and thoracic muscles, not the legs. Tetanic countenance very well marked. Bowels not opened since the night before last. To have a cathartic draught, and afterwards, if requisite, a turpentine injection. Mercurial frictions to be continued. 8 o'clock P. M. Tetanic spasms, but confined to neck, shoulders, and thorax, have just recommenced. Bowels well moved twice. Continue the frictions; to have a draught containing a drachm of solution of muriate of morphia, and repeated in an hour if the spasms become urgent.

5th. Slept well from 12 o'clock at night, the paroxysms having been very severe and frequent up to that hour; the pain of scrobiculus cordis only affects her when sitting up. Continue the frictions; let her have two morphia draughts, to be used as last night, should the spasms supervene.

6th. *Spasms set in exactly at* 8 *and ceased at* 12 o'clock; were very severe, and occurred at regular intervals of half an hour. Slept well since 12 o'clock. Bowels naturally moved, and without medicine.

7th. As yesterday.

8th. Tetanic paroxysms attacked her at 8 o'clock precisely, and left at 12. Slept well after that hour. Bowels not opened since the day before yesterday. *In full ptyalism.* Frictions of mercurial ointment to be omitted; to have a gargle of chloride of soda; and to take some house medicine immediately.

9th and 10th. Sharp paroxysms every twenty minutes or half-hour from 8 till 11; mouth very sore. To have an oil draught and a draught containing a drachm of solution of muriate of morphia at night.

11th. Expresses herself better to-day, having slept well, and had but three spasmodic paroxysms at the same period of the evening and night. Bowels not opened, as the castor-oil draught was omitted by error; to be given now.

12th. Bowels opened by castor-oil; slept pretty well; had five spasmodic attacks last night, but much less severe; can open her mouth a little, but the muscles of the jaw and neck

are still very rigid. The morphia draught to be repeated as before.

13th. No paroxysm for the last twenty-four hours; in other respects as yesterday.

15th. No paroxysms now for three days. Cervical muscles and those of the jaws so relaxed as to permit of her moving her head pretty freely from side to side, and to open her mouth to about half its utmost extent. Tetanic expression much less marked; gums better.

24th. Improving every day since last report. Ptyalism gone; expression natural; general health perfect.

27th. Discharged, by her own desire, cured; child alive and apparently vigorous.

The above case presents many peculiar and interesting features; the very chronic, or, in more correct language, mild nature of the symptoms from the commencement and throughout; the maintenance of perfect general health, appetite, sleep, &c., from the 25th of December to the 13th of January—the respective dates of the first premonitory symptom and the last decided tetanic paroxysm; the prompt and satisfactory manner in which the system responded to the administration of remedies; the bowels answering to mild doses of castor-oil, and full ptyalism following the use of mercurial frictions in seven days; the circumscribed and limited character of the muscular implication; the strictly periodic nature of the paroxysms, coming and going for ten days punctually at 8 and 12, with the regularity of a clock striking the hours; and the pregnant condition apparently unimpressed either by the disease or the treatment, for at the due time the patient was delivered of a remarkably fine child.

The diaphoretic treatment, vigorously pushed for three days after admission, though I was not sure of its compatibility with mercurial frictions, was adopted on the recommendation of the late Professor Colles, the rare practical value of whose every dictum I am daily realizing at the bed-side. On referring to my notes, of which I fortunately possess a copious digest of four successive seasons' lectures, I find under this head the following:—I make no apology for giving the extract in full, as it will be a valuable substitute for any observations which I could make on the subject, and may not prove altogether uninteresting to some of my readers. On January 29, 1835, after disposing of the subject of local preventive treatment of tetanus, he says:—"But we may be further asked, is there any mode of constitutional treatment likely to prevent its occurrence? and here I would likewise reply, 'I think there is.' I

am quite sure that I saw two cases prevented, and the patients saved the infliction of this terrible malady, by the treatment I am about to mention. The first case was that of an old gentleman, who, by a fall down stairs, suffered a compound dislocation of his thumb. I saw him a few days after the accident, while the thumb was yet unreduced, and found him expressing a sense of constriction about the throat, and rigidity of neck, which he imputed to having taken a cold; he had also the tetanic countenance, which I endeavoured yesterday to describe, and which, upon inquiry from his family, I ascertained was not the natural expression of his features. I of course saw the danger, and immediately put him upon the *sudorific plan of treatment*, which happily produced a speedy and profuse diaphoresis, and *the tetanic symptoms declined;* but now, mark! a physician was at the time in attendance by desire, and he said, that as the patient was feeble and old, we should not pursue the treatment any further for fear of *dissipating his juices!* We ceased it, and the premonitory symptoms of tetanus, before mentioned, recurred, even more remarkably than at first; the sudorific plan was again adopted, and happily again relieved the symptoms. The second case was that of a horse-breaker, who, on ringing a young horse, was dragged to the ground and received a severe hurt in his back and loins; there was no external wound (but remember this is not necessary to the occurrence of tetanus); he came to hospital with the premonitory symptoms mentioned in the other case, and was speedily relieved by the diaphoretic treatment vigorously pushed."

I do not know how far I am justified in attributing the mildness of the symptoms in the case I have described to the profuse diaphoresis so early and promptly induced; from the previously harsh and dry character of the skin, it is not quite unfair to infer, viewed in reference to the above extract from Mr. Colles' lectures,—which insists so strongly on the salutary influence upon this disease of copious perspiration,—that it bore no insignificant part in bringing about the happy and unhoped-for result.

Case II.—Patrick Christie, a spare but healthy man, forty-six years of age, a farmer in comfortable circumstances, was admitted into Sligo County Infirmary, on the 14th of August, 1852, having been upset from a market-cart, within five miles of town, at 9 o'clock of the morning of the same day. He met with a very severe compound fracture of the right leg (both bones at about the middle of their shafts), which had received

the whole weight of the overturned cart, fortunately not heavily laden with firkins of butter, between the wheel and the road; the upper portion of the tibia, longitudinally fractured, and the fibula transversely, were protruded on the anterior aspect of the limb; the former for about two inches, the latter for about half an inch, through two distinct lacerated and contused wounds in the soft parts and integuments of considerable extent and depth. He had lost a good deal of blood at the time of the accident; the limb was considerably swollen from the fracture to the ham by ecchymosis, and at the time of admission there was still a free oozing from the wounds. He complained of little or no pain, and presented no symptoms of constitutional shock. The larger lacerated and contused wound, through which the tibia had protruded, was cautiously explored by the finger for portions of loose bone, or foreign bodies, but without finding any; a large quantity of fluid and grumous blood was evacuated by gently rubbing down the leg from the knee to the wound, and a bandage lightly applied to prevent its re-accumulation. It having been found impossible to adjust the fracture by any degree of forcible extension which it was deemed judicious to exert, about an inch of the sharp triangular extremity of the tibia was removed, the limb perfectly adjusted, and a good extension made with the long splint.

Second day. In the morning I was summoned hastily to the hospital at 7 o'clock to see Christie. From an intelligent young man who occupied the next bed I gathered the following particulars:—The patient had passed a restless night, moaning constantly during snatches of disturbed sleep; but when awake, not complaining of pain. At 6 o'clock he had spoken quite sensibly, and given this man a detailed account of his accident; but in half an hour afterwards, the nurse, on entering the ward, found him in a state of great excitement, covered with perspiration, knocking his broken limb about, muttering unintelligibly when left to himself, and, on being roused and questioned, merely replying that he was "very bad," and immediately relapsing into delirium.

His condition when I arrived was as follows:—The whole body was in a state of universal tremor or *frisonnement;* the face and throat were bathed with a copious cold sweat, the rest of the surface cool, dry, and contracted; pulse 110, small and feeble; respiration irregular, unequal, and panting, at intervals calm—precisely like the "cerebral respiration" so well described by Graves as occurring in some forms of fever; pupils contracted

and insensible to stimuli; nevertheless, when shaken and spoken loudly to, he opened his eyes, and *appeared* to fix them with a momentary intelligence, but immediately afterwards became profoundly insensible again; *the jaws were rigidly locked;* the angles of the mouth retracted, exposing the teeth; and the expression decidedly, though faintly, tetanic; the thumbs were flexed firmly on the palms, the fingers on the thumbs, and the fore-arms on the arms, so as to bring both hands close to each other under the chin; every eight or ten minutes, or thereabouts, the tremor ceased, and was replaced by a quasi-tetanic (?) paroxysm of an opisthotonic character, merely indicated by a slow but very forcible extension of the arms, till they lay straight and rigid by the sides, and a jerking back of the head; the sound leg and thigh, during the intervals, were in constant motion of alternate flexion and extension, so that it was impossible to prevent him kicking off the clothes, but during the paroxysms this leg was extended like the upper extremities; the toes of this side were always kept in a rigid state of extension, the tendons being thrown out, like ropes on a strain, on the dorsum of the foot; the muscles on the anterior aspect of the leg alone presenting the state of true permanent tetanic rigidity. The injured limb lay perfectly quiet during the whole period of the disease. Bowels not opened since admission.

My first object being to remove, as far as I possibly could, all source of local irritation, the system of extension was, for the present, abandoned: the long splint removed; the limb laid on a pillow, between two short and light splints, with as little restraint as possible, and the wounds water-dressed; a large cathartic turpentine enema was administered with some difficulty; and, looking upon the cerebral symptoms as those evidently of reflected *irritation*, I felt no hesitation in prescribing a full draught of morphia, henbane, and camphor, which, to my surprise, was freely swallowed in tea-spoonfuls,—a result much favoured by the loss of some teeth; and on external examination of the throat, as the sup was swallowed, I was much pleased to find that the muscles of deglutition were not in the slightest degree implicated in the matter; half a drachm of mercurial ointment was ordered to be rubbed in on the arms and thighs every fourth hour, and the draught to be repeated in two hours if the spasms continued.

Second day, evening. In the same state, save that he presents as well-marked a tetanic countenance as I ever witnessed. The enema had come down unchanged; the spasms had re-

curred very mildly every quarter of an hour; pulse 104; he has had three draughts. Repeat the enema, and continue the draughts and frictions.

Third day, morning. As before; the paroxysms not quite so frequent, and always quieter after the draught; the arms and right leg during the paroxysms still continue to be extended; during the intervals the predominant action of the flexors of the upper extremities, as before described, bring the hands in approximation under the chin; thumbs rigidly locked in the palms; the fingers on the thumbs, and the wrists at right angles with the fore-arms; respiration much quieter. Bowels not opened since admission; pulse 100, regular; has had half an ounce of mercurial ointment rubbed in, and eight draughts, containing in all about five grains of muriate of morphia, half a drachm of extract of henbane, and eight ounces of Murray's fluid camphor. A drop of croton-oil, with six grains of calomel and eight of aromatic powder, made into a linctus with treacle, was smeared on the back of the tongue, as well as could be managed. Continue the draughts and frictions.

Evening. No change, but has had the paroxysms more frequently and violently since 1 o'clock in the afternoon; bowels not opened; pulse 100. Repeat the enema, frictions, and draughts.

Fourth day, morning. Wonderfully better this morning; is conscious, but appears stupid, confounded, and, as the nurse terms it, "bothered;" the trismus so far relaxed as to allow him partially to protrude the tongue, which is white and moist; passes urine involuntarily. Countenance much improved; has had the spasms less frequently and less severely than yesterday, and none since 5 o'clock this morning: still slowly but constantly flexing and extending the left leg and thigh; gums mercurialized; pulse 88, fuller; has had three draughts since last night. Bowels not yet opened. Ordered frictions and draughts. Repeat the linctus and enema.

Evening. Bowels largely opened; two solid, feculent, scybalous, and horribly fetid stools; greatly better; still stupid and wild in his manner; does not complain or speak except addressed; has a look and manner semi-maniacal; trismus still more relaxed; some permanent flexion still of upper extremities; but the spasmodic paroxysms are quite gone, and the left leg at rest; pulse 76, regular, weak, small; a copious and fetid discharge from leg. Let him have chicken-broth and wine.

Fifth day, morning. Greatly better, quite conscious, asks

for his drink and nourishment, and greatly enjoys his wine; has had another large scybalous stool; pulse 76; no spasms since; still passes his urine under him. Omit all medicines; to have wine, broth, and panada.

Sixth day. Had a slight return of the spasms last evening, quieted at once by the draught; a drachm and a half of solution of muriate of morphia, four grains of extract of henbane, and one ounce of Murray's fluid camphor; gums very sore; still suffers from incontinence; pulse 76; appetite increasing.

Seventh day. Is much better to-day; asks for the vessel when he wants to micturate; his wife says he is still "very light in his talk," which, however, has assumed the harmless and rather agreeable shape of joking and laughing with his neighbours and the nurse; says he is "starved," but feels quite well.

Eighth day. Improving.

It will be sufficient to say, that from this period the constitutional affection ceased; and though the patient suffered considerably from profuse and protracted discharge, and, after the healing of the wound, from the supervention of two deep-seated burrowing abscesses of the calf, consequent upon necrotic exfoliations, he was discharged in about four months with a serviceable leg, and is now actively engaged in the laborious pursuits of agricultural life.

The above very remarkable and interesting case I have ventured to class in the category of those anomalously tetanic, and with, I think, good and sufficient reason. On the side of this view may be adduced—1st, the trismus; 2ndly, the slight though decided paroxysms of tetanic spasm of an opisthotonic character, alternating with intervals of tonic spasm, though this latter symptom was of a partial character, confined to the upper extremities, the jaws, and the extensor muscles of the left leg; and 3rdly, the well-marked tetanic countenance, all supervening upon a compound fracture. Against this view may be cited,—the sudden coma and prolonged insensibility; the absence of difficulty of deglutition; and the freedom from tetanic rigidity of the great majority of the voluntary muscles, almost invariably implicated in traumatic tetanus; the equally partial character of the paroxysmal spasms; and lastly, what I believe weighs more than any other consideration with the votaries of superficial diagnosis, the fact of the patient's recovery.

Having studied this peculiar case with the utmost interest and attention from hour to hour, not alone by the feeble light

of my own experience and powers of observation, or vague inductions thence derived, but with all the aid and assistance which I could command from the best authors on the subject, I have been able to arrive at no other conclusion than that it was a veritable case of traumatic tetanus,—however anomalous, irregular, and out of due course, the grouping and progression of its symptoms undoubtedly were. In Travers' excellent and philosophical work on Constitutional Irritation, embracing, as it does, a very complete history of every form and degree of constitutional sympathy with local injury, whether slight or severe, and compendious notices of all the functional derangements of the nervous system consequent on such, illustrated by so many apposite cases, I have sought in vain for a single case, or in the able observations appended to each, for an explanation of the foregoing. We have copious notices of all forms and degrees of sensorial impression, from profound coma to hyper-maniacal delirium or phrensy; and of deranged nervous action, from tremor and partial subsultus, to general, violent, and fatal convulsion, as the effect of reflected cerebral irritation after fractures, lacerations, and surgical operations;—but not one word of persistent trismus, opisthotonic spasm, alternating for five days, or for any shorter period, at intervals of ten and fifteen minutes, with even partial tonic spasm or tetanic rigidity, or the tetanic countenance. This grouping of symptoms, when boldly expressed, and clearly pronounced, is pathognomonic of this strange and inscrutable disease; and however they may sometimes appear to be simulated in hydrophobia and hysteria, belong to no other; and I think it unscientific and absurd to designate them by any other name; because they are associated with other symptoms seldom before observed or never recorded, as the early coma and prolonged insensibility in Christie's case; or because wanting in one or more elements of the generic descriptions found in books,—as the absence of difficult deglutition, of general spasm, and universal rigidity, in the same.

Unfortunately, traumatic tetanus rarely presents itself in a form likely to puzzle the most inexperienced, or to confuse or discredit his diagnosis; nevertheless, there are many such on record. So eminent an authority as Sir Gilbert Blane records a fatal case, in which "the spasms communicated a sensation rather pleasing than otherwise, nor was any pain experienced to the last." Dr. Moseley, Physician to Chelsea Hospital, who wrote in 1795, and had encountered vast numbers of cases of this disease in the West Indian Islands, confirms Sir G. Blane thus:—"I have known people in the tetanus,

with the sweat running off them from the violent pulling of the muscles, who have, nevertheless, told me that they indeed felt a distress they could not explain, yet they could not say it was actual pain"[a]. Sir G. Blane gives the detail of two other cases, in which the tetanus was entirely confined to the side on which the wound was situated, being instances of the pure pleurosthotonos of ancient writers, as Hippocrates, Ætius, Paulus Ægineta, &c. Morgagni gives a similar case of pure lateral tetanus as occurring in his practice, and another in which, after continuing general for four days, the spasms on the morning of the fifth—the day of the patient's death—were confined to the right side. Moseley—who disbelieves the existence of partial tetanus, because, in the more violent and rapidly fatal form which this disease assumes in tropical climates, he had never seen such—objects to all such cases of lateral tetanus, that they were probably—though he does not state why—associated with hemiplegia!—being not a very flattering estimate of the acumen of such observers as Morgagni, Blane, &c., nor one to which my readers are likely to attach much credit. The locking of the thumb in the hand, exactly as in ordinary infantile convulsion, though a symptom I never observed except in Christie's case, and one not recorded in books, is oddly enough stated by that acute observer, Hippocrates, who has left us so little to improve upon in his symptomatology as "an almost invariable accompaniment of the opisthotonos."

Surely those anomalous instances of painless and lateral tetanus are quite as much "out of due course" as the two detailed above; yet authors of the highest repute and most extensive experience have not hesitated to recognise them as true tetanus. Hardly any two varieties of the same disease could have presented more dissimilar features than those of Gannon and Christie, and yet the pathognomonic symptoms—trismus, opisthotonic spasm alternating with partial rigidity, and the tetanic countenance, following wounds—were the common and distinguishing features of each, and in my mind sufficiently pronounced to stamp their unmistakable character.

Having attempted to give as brief an outline of the above cases as was consistent with perspicuity, I shall hazard but one additional observation, namely, as to the curability of acute traumatic tetanus. The preceding present, respectively, fair types, the one of the chronic, the other of the acute form of invasion; in the first case fourteen days intervening between the

[a] On the Diseases of Tropical Climates, Third Edition, p. 474.

receipt of the injury and the supervention of tetanic symptoms; in the last but twenty-two hours. There are many instances, not of mere recovery from, but of the *cure of, chronic* traumatic tetanus, particularly in the records of military surgery[a]; but from anything I have myself seen, or can collect from books, I believe that fully formed and universal acute traumatic tetanus is uniformly fatal. The rare cases of recovery, few and far between, which sprinkle the pages of our copious periodical literature, or vary the almost invariable details of suffering and death in the works of standard authors, are all either of the chronic form, or of what may be termed imperfect or modified tetanus, of which the two just detailed may be esteemed examples;—the most opposite methods and systems of treatment, from the strictly antiphlogistic to the highly stimulant: from the lancet and starvation to wine and bark; from the cold affusion and cold plunge-bath to hot baths; the diaphoretic, the mercurial, the purgative, the opiate, the anæsthetic, and Indian hemp indications have all had their votaries, their hour of trial, triumph, and contempt; and yet, from the days of Hippocrates to the present, the nature and proper treatment of traumatic tetanus have ever been among the many *quæstiones vexatæ* of surgical inquiry.

For the prompt and energetic administration of mercury and morphia I confess my predilection, perhaps, on empirical grounds, and certainly without attempting for a moment to solve the knotty point of the *ratio medendi;* early diaphoresis is a treatment only applicable to very mild and chronic forms of invasion, such as Gannon's. No one, surely, in Christie's case would consent to lose time in such efforts. The mercurial and opiate treatments have the high sanction of Sir A. Cooper and of other great men, and possess the invaluable advantage over any other form of internal or constitutional treatment—that in any variety of the disease they can be energetically plied, and their full influence, so far as the disease will permit, be secured, the one by external friction, the other by enema. I have over and over again seen the influence of a full dose of morphia *almost immediately* exercised with manifest and unmistakable benefit on the severity of a tetanic paroxysm. Should we get a case of this disease in its early stage, and before the poison of irritation, so to speak, had seized on every nervous filament, and every muscular fibril, is it too much to assume that we might succeed in arresting its progress and determining what in a few hours would prove universal and

[a] See Larrey's Memoirs, Sir G. Blane's Observations; and Sir James Macgrigor, in the Medico-Chirurgical Transactions.

incurable disease, into a chronic and partial form? As respects mercury I shall only observe, that, of many cases of tetanus, I have seen but three recover, and in all three the patients were fully and severely mercurialized. Your cut-and-thrust surgical dialecticians will say, "They did not recover because they were mercurialized, but they became mercurialized because they recovered,"—a species of logic which we may safely pass without notice. Strict attention to the bowels must be observed all through, and an occasional brisk mercurial purgative, with turpentine enemata, appear to me the most suitable means of acting on, and carrying off rapidly, depraved and irritating secretions, as recommended by Mr. Abernethy. I would also suggest the necessity of sustaining the patient's strength *from the starting-post.* I am sure that I have seen more than one instance in which due attention to this point was overlooked in the anxiety to push vigorously the medicinal treatment of the case. Constitutional irritability, without a high degree of which we cannot have tetanus, is the product of deficient power; according to Hunter's definition it is "an increased disposition to act, without the power to act with," or "overaction, relative to the strength of the parts." Every hour that the disease lasts is fatally exhausting this already deficient power; and hence there are, I should say, few cases (if one at all) in which chicken-broth, beef-tea, and wine, may not be from the first judiciously exhibited.

ART. VII.—*Selections from the Unpublished Manuscripts of the late* ABRAHAM COLLES, *Professor of Surgery to the Royal College of Surgeons of Ireland.* Edited by his Son, WILLIAM COLLES, F.R.C.S.I., Surgeon to Steevens' Hospital, &c.

(*Continued from* Vol. XVI. p. 299.)

No. 4.—A PECULIAR DISEASE OF THE RECTUM.

IN many of my father's earlier note-books I find cases under the heading of "The Disease of the Rectum;" of these there are records of about twenty, and in his miscellanous papers is an *essay*, of which I cannot find the commencement, but which was evidently intended to have been read at some medical society, there is no proof however that this intention was ever carried into effect, nor do I find any notice which would induce me to conclude that it had been published. I therefore give it now, imperfect as it is, subjoining a case illustrative of the disease; this will suffice to give an idea of his view of the affection. In

conclusion, I shall append a tabular abstract of the remaining cases noted by him, adding some observations upon them.

Essay.— . . . . Such are the symptoms of the disease under which the patient labours; our next object of inquiry should be to ascertain what is the name and nature of this disease, and to learn by what treatment a cure may be finally accomplished. I regret much that it is not in my power to give any positive information on these important points; that I can only lay before this Society a sort of negative knowledge.

But, although the following remarks cannot furnish us with an insight into its nature and cure, yet I trust it may be a task not unworthy of your notice to lay before you the symptoms of this disease, which, I fancy, has been long known to practitioners, but the symptoms and natural history of which, I cannot find recorded in any surgical works. I have seen it attack patients of both sexes indiscriminately, and persons of all ranks of life indifferently. I have met with no instance where it occurred before puberty or after 60; it may attack at any age between these two periods.

Many of these unhappy people commence the history of their disease,—that their bowels had been obstinately costive for some days, or even for weeks; that they had taken very large and repeated doses of salts and other purgative medicines without having been able to procure a single evacuation; that this long continued constipation of the bowels at length gave way, and on passing a stool a large discharge of pure blood, or blood mixed with purulent matter, to the amount of some quarts, followed the evacuation. With other patients, a tenesmus for a few days preceded this costiveness; the tenesmus having continued some days, many of them then perceived a lump or fulness at the verge of the anus, which they did not notice previously, and which they conceived to have been caused by the affection. Some few of these patients cannot refer the commencement of the disease to any particular period; they have never been sensible of any lump or tumour. Such persons generally mention that they had often been subject to inward piles in the rectum.

However different the commencement of the disease may be in different patients, yet they are all similarly affected in its subsequent stages, for after this first large evacuation of blood, or other fluid, the patient is troubled with a frequent desire to go to stool, on which occasions, in general, nothing but a very small quantity of fluid escapes, sometimes a table-spoonful of a glutinous matter, sometimes more thin and liver-coloured.

Seldom is a feculent stool passed, and when it is, the patient is sensible of a contraction in the gut, or diminution in its caliber; if the fæces be hardened, the evacuation is attended with excessive pain; if of a more soft, though solid consistence, the diameter is much lessened, sometimes not exceeding that of a writing pen. They generally pass two, three, or more days without a feculent stool unless they use some article of diet or medicine for the purpose of evacuation. From the description of these patients, it appears that the tenesmus which accompanies the alvine discharges is the prime source of this distress. The stools vary in number on different days, sometimes amounting to twenty, seldom fewer than six or eight.

After the disease has continued in this state for some indeterminate period—a few months or years—the condition of the patient is rendered more distressing by a discharge of a thin, ichorous or coffee-coloured fluid, which flows from the rectum when he coughs, or walks, or uses any bodily exertion: not unfrequently his nights are rendered still more uneasy by the flow of this matter as he lies in bed. The urinary discharge is, in some instances, affected even early in the disease; in some few by a difficulty or delay in commencing this evacuation; in others, by an inability to void the last drops. In the very last stages the urine cannot be voided without causing an irresistible desire to go to stool.

If we examine the rectum we may there perceive one or two excrescences at the verge of the anus. These seem to be formed partly by the lining membrane of the gut, at least their inner surface appears like a secreting surface or excoriation. In many instances, two level excrescences lie with the adjoining edges in contact, so as to resemble the arytenoid cartilage, or the spout of an ewer. The patient being desired to press down or strain as if at stool, a few drops of a liver-coloured fluid are discharged. A hard mass can, in some instances, be felt by pressing around the anus. On introducing the finger into the rectum a hardness and roughness, caused by innumerable protuberances, is to be felt seated at different heights. In some it commences immediately at the very verge of the rectum, and extends nearly as high as the finger can reach; in other cases this morbid condition does not extend beyond that portion encircled by the sphincter; and in others again, the disease is seated still higher up. In all, considerable resistance is given to the introduction of the finger, not only by the narrowness of the canal, and its projecting irregularities, but also by the firm, unyielding hardness of the diseased portion. In one or two instances the canal of the gut was particularly con-

tracted in one spot—as if a small aperture had been left in a membrane which stretched across the gut. The introduction of the finger in all instances has given considerable pain, but if the finger be slowly passed up the gut it will be found gradually to dilate, and then admit the examination with less distress. The hardness which is felt in the substance and neighbourhood of the gut does not always uniformly surround it. In some instances the hardness is felt at one particular spot, as if a tumour lay connected with the coats of the intestine at this part. There is one symptom which is to be met with in, perhaps, every third or fourth person affected with this disease, and which deserves particular attention—it is an external fistulous opening at or near the verge of the anus, which yields a discharge resembling in quantity and quality that of the ordinary fistula, and by no means of the same quality with that passed through the canal of the intestine. I have myself, before I was aware of the nature of the disease, cut one of these patients as for fistula, and have seen more than a few instances in the hands of other practitioners, and always with this remarkable effect, that these incisions, in general, healed as kindly as if the fistula had been the only disease; and in no instance—not even one I had cut, and in which the incision did not heal up—could it be said that the operation added to the subsequent distress of the patient, or exasperated the original disease. Where the fistulous opening occurred in cases with a tumour at some particular spot of the gut, the fistula was found to lead to such tumour.

I have not been able to trace in the relation of these cases that any of the patients experienced any constitutional symptoms which could be considered as precursors or attendants on the first stage of this local disease. Nor does it, during the greater part of its progress, seem to make any impression on the constitution—indeed, my astonishment has been excited on perceiving that such trains of local distress had not produced any sensible decay in the general habit.

I should observe, that in one instance only vomiting accompanied the first attacks of this disease. Symptoms of hectic fever first denote the injury done to the constitution. The time at which these appear differ in different individuals: in some so early as six months, while others have remained with the constitution unimpaired for as many years. In one case there was not any regular hectic, the patient was reduced to the most extreme degree of wasting and emaciation that I have ever witnessed. I am inclined to think that the appearance of hectic is the only index that can lead us to a knowledge of the probable duration of the disease.

I have had the opportunity of inspecting only one of those whose death had been caused by the disease. It was the case of a gentleman who had never shown symptoms of regular hectic. Some slight marks of inflammation appeared in different spots; on the small intestines a quantity of fluid, partly composed of coagulated lymph, and partly purulent, was found in the pelvis; the alteration in structure was not confined to the rectum, but was remarkable, though not to an equal degree, along the left colon, as may be seen in the preparation preserved in the Museum of the Royal College of Surgeons. The tumour, or hardened part, was closely in contact with the anterior face of the sacrum, so as to render its separation from the bone both difficult and tedious; the bladder was much thickened and contracted. How far the state of the viscus was a consequence of the decrease in the very scanty secretions of its fluid during the last month of life, I cannot pretend to say.

From the history of the symptoms, and the appearances on dissection, I fear we can derive but little useful information which could lead to a successful mode of treatment. I shall now proceed to state the various remedies I have tried, and the results of such trial.

From the reports of Dessault, on whose authority I have always placed great reliance, I tried, in almost every case, the effects of dilatation. For this purpose I have used a variety of substances, such as prepared sponges, bougie composition rolled so as to form pessaries of various thickness, tallow candles of various sizes, adapted to the diminished capacity of the canal in each case. My expectations, which had been raised so high at reading Dessault's cases, I must say, have been completely disappointed, for when the dilatation has been used in the early stage of the disease, before any symptoms of hectic had appeared, although some had steadily persevered in its use, yet I could not discover much amendment in the symptoms, and the most regular of these persons have at length laid them aside, fully convinced by experience of their total inefficiency to afford even a mitigation of their distress. After the accession, the use of the dilating instruments could not be borne by any patient longer than one week, owing to the pain and irritation they occasioned.

Those who had been cut for the fistulous openings near the rectum did not experience any relief from the original disease, even in the cases in which the incisions had healed up. One or two of these patients seemed to think the passage was rather more narrowed after the operation.

From the supposition that the disease was cancerous, I have given the solution of arsenic in such doses as to produce the

usual symptoms attending its operation on the system, and continued its use for some time, but without producing any alleviation of the suffering. With the same view, and with the same inefficacy, has hemlock been administered.

I have used mercury in small doses, so as to excite ptyalism, and have even used this medicine as freely, and for as great a length of time, as is in general sufficient for the cure of secondary venereal symptoms, but have never been able to observe that its use afforded even temporary relief; and not unfrequently has the general health been materially injured by it. Mucilaginous fluids, combined with opium, have appeared to give more relief than any other medicine I had tried; yet this medicine has not uniformly, or even in the majority of cases, been of service. Large leechings are prejudicial.

This disease might be considered as cancerous, but, as an objection to this opinion, I must remark, that cancerous diseases are much exasperated by incisions or partial excisions, whereas this disease did not appear to be at all increased by such treatment.

The venereal disease might be suspected to be the cause of this affection; but, although it had occurred in some instances where lues had previously existed, yet all the other venereal symptoms[a] . . . . . .

CASE I.—Matthew Maguire, aged 38, July 7, 1808. Two years ago he perceived that he passed, by stool, a substance resembling melted fat, distinct from fæces; also a substance like flummery alternating with it. The disease was preceded by a discharge of blood from the anus for a fortnight, and the diarrhœa was followed by tenesmus. He had syphilis the winter before; in November he was confined to bed by this complaint, when the stools were watery; he had chancre since, and used mercury; and in March scrofulous glands enlarged in his neck. At present there is a discharge like melted fat, of a greenish colour, and at times like flummery; desires to go to stool innumerable, and more frequent by night than by day, attended sometimes with tenesmus and protrusion of the rectum; no uneasiness in abdomen, nor delay in passing urine. At the anus is an excrescence resembling a cream-ewer; to the finger the anus feels more soft than natural, as if thickened, not hardened; pushed up one-half, a narrowness of the gut is felt, which yields by steady pressure; above this it feels healthy; great pain on the finger passing through the stricture; flesh wasted; pulse 110.

Post-Mortem Examination.—On opening the abdomen, the

[a] The original manuscript terminates thus abruptly.

omentum was found healthy, but devoid of fat; cœcum and colon distended, with flatus; in the tranverse colon the coats slightly thickened; ilium distended; some slight vascularity about the small intestines; no other disease; no indurated glands to be perceived; the colon and rectum, slit up, were found not thickened; no thickening or tumour in the rectum; at the seat of the structure, the inner coat of the gut had an irregular surface, as if an additional membrane was pasted over it; the remainder of the rectum and colon presented similar appearances, but in a less degree; no hardness on the spots, but considerable on the edges; the colour of the inside of the rectum was deep brown or livid near the anus, gradually diminishing near the colon; the colon had some spots of unusual vascularity, and its surface was covered with a secretion resembling that of an ulcer; a large quantity of yellow fluid was found in the right colon.

ABSTRACT OF CASES.

No.	Age.	Sex.	Duration.	Discharge compared to	Remarks.
1	38	M.	2 years.	Melted fat and flummery.	
2	34	M.	1 „	Hard balls in a bag of slime.	Fistula.
3	25	M.	10 „	Slime and reddish water.	Cut for fistula a year ago; sores size of a finger.
4	30	M.	4 „	Slimy matter mixed with blood.	
5	48	M.	1 „	Slime and pus.	Fæces flat.
6	28	M.	5 „	Slime, froth, and blood.	Says if he could do without eating would be as well as ever.
7	50	F.	3 „	Reddish fluid.	Great appetite; fat; vomiting brought on by straining at stool.
8	45	M.	. . . .	Blood and pus.	
9	36	M.	. . . .	Slime and pus.	Small hard protuberances inside of rectum for two inches up.
10	32	M.	4 „	Scraping of guts.	
11	23	M.	19 months.	Pus and blood.	
12	29	M.	9 „	Jelly, slime, and blood.	Had jaundice when twelve years' old.
13	28	F.	4 „	Clots of liver colour.	Often had vomiting.
14	55	F.	12 „	Lumps of blood.	Fistula cut; hemorrhage, followed by incontinence of fæces.
15	25	M.	12 „	Reddish water.	Stools pass involuntarily if not firm.
16	50	M.	9 „	Blood and pus.	Great pain at anus for five hours, during which he cannot pass fæces or urine.

Observations.—This is a form of disease hitherto undescribed. It differs from the known diseases of the rectum—simple stricture and scirrhous rectum. It cannot be mistaken for the former, which feels as if a smooth, narrow band was drawn around the gut; from the latter, though more resembling it, it may be distinguished:—first, by the age at which it occurs; thus we have seen it in young persons, and, on taking an average of the cases, the ages, and the previous existence of the disease, we find on the average that the disease comes on about the age of 33. Again, in scirrhous rectum, I do not think we find those profuse discharges, or the admixture of pus.

In the scirrhous rectum the constitution soon sympathizes with the disease, or even alters before the local symptoms appear, and we find the patient presents the peculiar leaden, waxy hue and thinness of a cancerous subject. In this disease the patient will retain his fresh, healthy look for years unaltered, till finally the hectic sets in. In the scirrhous rectum the finger feels the gut contracted and rough, but this is of the stony hardness peculiar to cancer, while, in this disease, the gut feels thickened, and the protuberances soft, like large flabby granulations.

These are, in my opinion, differences sufficient to enable us to distinguish between the two diseases, and to authorize us to regard them as separate and distinct. And even should they be considered as the same disease, I think the paper worthy of publication, as attracting attention to a form of the disease of which we have no very full or satisfactory account, as far as I am aware, and symptoms are here noticed which have not been sufficiently regarded in the accounts of it hitherto given.

There is at present under my observation a woman who was attacked with this disease at the age of 25. She was five years under treatment by every possible means, including the strongest caustics, without any effect; she was then admitted into that valuable institution, the Incurable Hospital, where she has now been for nearly thirteen years. Yet she is still stout and healthy-looking, though suffering at times great pain; the bowel protruding on any exertion, and so contracted as to scarcely admit a No. 4 catheter. She is constantly annoyed by the discharge of the jelly-like fluid, and is enabled to procure a fæcal evacuation about once in the week by medicine, which induces a great aggravation to her sufferings, attended with vomiting, &c. It at one time appeared to me that this would be a form of disease in which the operation of forming an artificial anus might add to the patient's comfort, and prolong life indefinitely, for here the original disease is not malig-

nant: yet, when we see a case like this, where the patient can exist for such a number of years, and remain in health and flesh, whilst the caliber of the rectum has not allowed any matter to pass of a size larger than a goose-quill, we feel a hesitation in urging such an operation, at least until the later stages of the disease indicate danger to the patient's life from the greater narrowing of the canal.

Art. VIII.—*Contributions to the Pathology of the Heart.* By Benjamin George M'Dowel, A. B., M. D., one of the Physicians to the Whitworth and Hardwicke Hospitals, Lecturer on Anatomy and Physiology in the Carmichael (formerly the Richmond Hospital) School of Anatomy, Medicine, and Surgery, &c.

(*Continued from* Vol. XVI. p. 81.)

Section IV.—tricuspid regurgitation—effects of dilatation of the right side of the heart.

Whilst the valvular apparatus of the right side of the heart is to a remarkable degree exempt from disease, it must be admitted that the muscular structure of the right auricle and right ventricle is liable, even more than that of the corresponding cavities of the left side, to structural changes. The explanation of this fact is contained in the now generally admitted axiom, that morbid changes in the heart are propagated in a direction contrary to the course of the circulation. Hence all diseases of the heart which interfere with the free transmission of the blood through its left cavities, or of the lungs, which in any degree produce permanent obstruction to the pulmonary circulation, are, sooner or later, productive of hypertrophy, and subsequently of dilatation of the right ventricle and right auricle. Dilatation and hypertrophy of the right side of the heart are consequently, in a large proportion of instances, to be regarded as secondary affections.

In a former paper I endeavoured to illustrate by a series of cases the pathology of dilatation of the heart, especially as regards its effects upon the system generally. In those instances, however, this lesion affected the left chambers principally; or, where the right cavities were implicated, such change was consecutive to disease originating in the left side. In a few instances only were both sides equally affected; but the following cases present marked examples of excessive dilatation engaging the right auricle and right ventricle almost exclusively.

Progressive dilatation of the cavities of either side of the heart eventually leads to dilatation of the orifice by which they communicate; and in the following instances, accordingly, dilatation of the right auricle and right ventricle was complicated by a permanently patent condition of the right auriculo-ventricular opening: these cases, therefore, are illustrative not only of the general symptoms of dilatation of the right side of the heart, but also, and in an especial manner, of the signs and symptoms of "Tricuspid Regurgitation."

Case XIII.—*Dilatation, with Hypertrophy of the Right Cavities of the Heart. Tricuspid Regurgitation.*

Robert Leonard, aged 36, was admitted, under my care, into the Whitworth Hospital, February 10th, 1849, labouring under the general symptoms of confirmed cardiac disease. He suffered from cough, breathlessness, and urgent dyspnœa; his face was of a dark purple colour from excessive venous congestion; the superficial veins were universally distended, and general dropsy existed to an extreme degree; the jugular veins, in common with all the superficial veins of the body, were turgid; jugular pulsation existed, but was to a great extent concealed by œdema of the neck; profuse epistaxis frequently occurred; at other times there was hemoptysis; so that these two forms of hemorrhage might be said to alternate. In addition to these symptoms, which collectively denoted cardiac obstruction, the following physical signs were observed:—The impulse of the heart was strong, expansive, and widely diffused, whilst the radial pulse was relatively small and very weak; a single hoarse murmur, which accompanied the systole of the heart, was loudly audible over the region of the apex, but could not be traced in the trajet of the great vessels. This murmur was persistent. Lastly, there were evidences of extreme congestion of the lungs, whilst the liver was considerably enlarged.

The urine, which was albuminous, presented a dark, muddy appearance, denoting the additional complication of renal disease, which the previous history of the case rendered more than probable.

This man had been under my care in the early part of the year 1846 for acute albuminuria, induced by exposure to cold whilst he was under the influence of mercury for secondary syphilis. Anasarca, and general febrile disturbance, were the prominent symptoms at this time. Under the usual treatment, these were removed, and apparent recovery ensued; but at

the time of his leaving the hospital, although no trace of dropsy remained, the urine was yet albuminous, with a specific gravity considerably below the average of health. His habits, which had been extremely intemperate, underwent no change, so that he never regained good health. Symptoms of cardiac disease made their appearance soon afterwards; epistaxis, and attacks of difficulty of breathing, became of frequent occurrence; and dropsy, now depending on cardiac, and not as before on renal derangement, once more made its appearance. Treatment was in this case productive of little benefit; the dropsy, in particular, proved more than usually intractable. The abdomen filled so rapidly that paracentesis was soon imperatively demanded. The relief thus afforded was of but very short duration. The fluid quickly accumulated again; the paroxysms of dyspnœa became more and more urgent. There were repeated attacks of profuse pulmonary hemorrhage; delirium at a later period ensued; and death finally took place in one month after his admission into hospital.

During the time this case was last under observation the physical signs underwent no change. The persistent systolic *bruit*, confined strictly to the region of the apex, indicated mitral regurgitation; whilst the general symptoms rendered it probable that there coexisted either mitral narrowing or general dilatation of the heart: that the right side, at least, was dilated and engorged, was sufficiently manifest.

Post-mortem Examination.—The heart was excessively enlarged, and was both dilated and hypertrophied: these changes affected the right side chiefly. The right auricle and right ventricle were greatly enlarged, whilst their walls—especially those of the right ventricle—were considerably thickened. The muscular tissue of the heart was firm and of healthy appearance; the right auriculo-ventricular opening was dilated to at least twice its usual dimensions. The tricuspid valve was healthy, but necessarily inadequate; its carneæ columnæ were much hypertrophied. Dilatation, with hypertrophy, likewise existed in the left cavities, but in a comparatively slight degree. The larger venous trunks were gorged with blood. The lungs were congested, and in several places pulmonary apoplexy was fully developed. The liver was enlarged and greatly congested. The condition of the kidneys was overlooked; but the symptoms, in connexion with the previous history, leave no doubt that these organs were likewise in a diseased condition.

The remarks already made on the obstructive influence of excessive cardiac dilatation receive a further confirmation from

the case now detailed. In this instance the general symptoms were those which usually attend obstructive valvular disease, and on analysis it is not difficult to assign to each its proper source. Thus, the pulmonary congestion, hemoptysis, and consequent pulmonary distress, are referable to dilatation of the left side of the heart; whilst to the dilated condition of the right cavities peculiarly belong the profuse and frequent epistaxis, venous congestion, dropsy, and enlargement of the liver. The chief peculiarity of the case consists in the altered relation which the morbid changes bear to each other. In general, enlargement of the right side of the heart occurs as consecutive to disease either in the left side of that organ or in the lungs, which interferes with the free transmission of the blood through the pulmonary capillaries; but here, on the contrary, dilatation engaged the right cavities primarily, giving rise to rapid and excessive engorgement of the venous system, and, as the result of this venous obstruction, changes similar to those originating in the right cavities became subsequently impressed upon the left auricle and left ventricle. Such being the sequence of the morbid changes, we can better understand some peculiarities in the symptoms: thus, epistaxis preceded hemoptysis; and engorgement of the venous system and resulting dropsy were developed early, and not as they usually are at a late period in the history of the case.

I would lastly notice this peculiarity, that without the existence of contraction in any orifice or in any valve, we have here an instance of vigorous action of the heart (as indicated by the force of its impulses), co-existing with marked feebleness of the radial pulse. But the vigorous impulse of the heart was due alone to the contractions of an hypertrophied and enlarged right ventricle, and falsely represented the efficiency of the systemic circulation.

Valvular inadequacy (the inadequacy of the tricuspid valve) was in this instance the result of dilatation of the right cavities of the heart, and so far resembles Case xii. In Cases i. and ii. the mitral valve was rendered inadequate by excessive dilatation of the heart's left cavities; just as dilatation of the aorta, as has been shown by Dr. Corrigan, may produce "permanent patency" of that vessel, although its valves are intrinsically healthy.

In the following case tricuspid regurgitation was likewise the result of dilatation of the right auricle and right ventricle, depending on the existence of a direct obstacle to the transmission of blood through the pulmonary vessels.

Case XIV.—*Tricuspid Regurgitation. Dilatation with Hypertrophy of the Right Cavities of the Heart. Cirrhosis of the Right Lung, and Obliteration of the Right Pulmonary Artery.*

John Fay, a man of middle age, first came under my observation in May, 1850, when he was admitted into one of my wards in the Whitworth Hospital, labouring under general anasarca. He had a troublesome cough, and his breathing was much oppressed; his face was swollen and bloated, and his lips were livid.

In reply to our inquiries he stated, that he had laboured under an affection of the chest for five years and a half, which commenced with acute symptoms like those of pleuritis; that, notwithstanding active treatment, he did not perfectly recover, for there remained cough, with more or less of pain in the side, oppression of breathing, and occasional hemoptysis.

Dropsy had appeared six weeks previous to admission. The physical signs indicated cirrhosis of the lung, and were as follows:—The right side of the chest was manifestly much diminished in size (being one inch and a quarter less opposite the nipple); there was flattening beneath the right clavicle, and the whole of the right side was almost motionless in respiration, whilst its lower three-fourths were absolutely dull to percussion. The upper lobe of the right lung gave on percussion a morbidly clear sound; the same clearness on percussion likewise prevailed over the left lung, so as to replace the normal dulness of the cardiac region, and encroach on the limits of the anterior mediastinum. The heart was transposed from left to right, and its apex impinged against the parietes immediately below the right nipple. The natural respiratory murmur was distinctly heard in front of the apex of the right lung, but over the remainder of this lung, and especially from the spine of the scapula downwards, loud tubular breathing, and bronchophony, with occasional mucous rales, were audible. Immediately beneath the scapular ridge were, muco-crepitus amounting to gurgling, and intense pectoriloquy. The expectoration was muco-purulent and copious. The left lung was free from disease.

My reasons for believing that cirrhosis of the lung, rather than phthisis, existed in this case may be thus briefly stated:—1st. The chronicity of the disease. 2nd. Its limitation to one lung. 3rd. The apex of the lung being less implicated than the base. 4th. The predominance of the signs of solidification over those of softening. 5th. The existence of dexiocardia;

the heart being displaced towards the diseased lung. 6th. The absence of hectic and of laryngeal disease.

In six weeks the dropsical effusions, which depended no doubt on obstruction to the pulmonary circulation, were completely removed, and the patient left the hospital.

July, 1851. He was readmitted, labouring under the same symptoms of pulmonary disease, but in an aggravated degree. Careful examination satisfied me of the persistence of the physical signs which had existed fourteen months previously, and confirmed me in the diagnosis then formed as to the existence of cirrhosis of the lung. The condition of the heart, at this time especially, engaged our attention. It has been stated that this organ was displaced to the right of the sternum, and in this new situation a very distinct bellows murmur was discovered to accompany its systole. This *bruit* was loudest over the apex. The jugular veins, as also the veins of the upper extremities, were remarkably turgid; jugular pulsation was not distinctly perceived, but the œdema of the neck in a great measure obscured the veins.

The patient again left the hospital relieved, and was once more readmitted, January, 1852, into one of Dr. Banks' wards, who, knowing the interest I had taken in the case, kindly transferred it to my care. At this period Fay's condition was much changed for the worse, his entire body was anasarcous, and he suffered from the most intense dyspnœa. His face was bloated, and perfectly livid from congestion. In addition to signs of thoracic disease formerly observed (and which were once more verified), there now existed congestive pneumonia of the base of the left lung. The right side was become still further contracted, and now measured two inches less than the left; the intercostal spaces also were narrowed. The apex of the heart, as before, beat beneath the right nipple, and a systolic bellows murmur was yet evident in this situation. He died four days afterwards.

Post-mortem examination[a].—The right lung, which was not much larger than the closed hand, was remarkably dense; a section of it presented the appearances of cirrhosis; the bronchial tubes, however, were not dilated, in which respect it differed from cirrhosis, as described by Dr. Corrigan. The pleura was an inch thick, the costal and pulmonary layers were but partially adherent, and in the spaces or cavities thus left upwards of a quart of clear serum was contained. The left lung was augmented in volume, congested, and œdematous; the

[a] Proceedings of the Dublin Pathological Society, New Series, p. 276.

latter changes, however, were of recent origin. The heart lay behind and to the right of the sternum, having its apex directed to the right side. Its left cavities were normal, but those of the right side were enlarged, and their walls remarkably thickened. The right auriculo-ventricular opening was much dilated. The trunk of the right pulmonary artery was completely filled up by a firm, laminated, but colourless coagulum of fibrine, which was adherent to the lining membrane of the vessel. The left branch was larger than natural, but unobstructed.

I have entered thus fully into the details of this remarkable case, as it presents new and unusual combinations of disease. With reference to its essential features, it is to be regarded as a new variety to be added to the extensive class of diseases in which dilatation of the right side of the heart is met with as the result of pulmonary obstruction. These, however individually numerous, admit of being arranged in three groups or subdivisions. In the first the source of the obstruction is relatively remote, as in contraction of the left auriculo-ventricular opening; or, more distant still, as in aortic valve disease. The influence of these diseases, especially the former, in causing enlargement of the right side of the heart is sufficiently established. In the instances of the second group, we find the obstruction to consist in morbid conditions of the lungs themselves, depending, for example, on those structural changes which result from repeated attacks of bronchitis, or contractions of the chest, the result of pleuritic effusions, or it may be on original defective development of the lungs, as has been ably demonstrated by Dr. G. H. Barlow[a]. In the third group may be included those cases in which the obstruction is found yet nearer to the heart, viz., in the pulmonary artery, either in one of its branches, as in the case of Fay (Case xiv.), or at the mouth of the great trunk itself. The pathology of the latter affection has yet to be determined.

In the case last detailed the sequence of the morbid changes in the heart and lungs may be stated to have been the following:—Cirrhosis of the right lung and contraction of the corresponding side of the thorax; hypertrophy of the right cavities of the heart; gradual diminution in the amount of blood transmitted through the right pulmonary artery, and final cessation of the circulation through that vessel, owing to the formation within it of a firm coagulum. Hence, owing to the increased resistance, there resulted enlargement of the right ventricle and auricle,

[a] Guy's Hospital Reports, First Series, vol. vi.

dilatation of the right auriculo-ventricular opening, tricuspid regurgitation, excessive venous congestion, dropsy, and enlargement of the liver.

The physical signs of tricuspid regurgitation have been fully elucidated by various observers, but they are seldom presented to us in so isolated a form as in the preceding cases, because a permanently patent condition of the right auriculo-ventricular opening, on which regurgitation depends, is generally associated with other cardiac lesions already adverted to. Hence the special phenomena of tricuspid regurgitation are liable to be more or less obscured. In the cases detailed in this paper, the patent condition of the right auriculo-ventricular opening was consequent on dilatation of the cavities which it connects. In accidental rupture of the chordæ tendineæ of the tricuspid valve, we are presented with an equally efficient and more direct cause of tricuspid regurgitation. Of this rare lesion Dr. Robert Todd has published a most interesting case[a], in which the physical signs were equally distinct and isolated. The phenomena in this case will, on comparison, be found to agree in all essential points with those which existed in the examples detailed in the preceding pages.

From a review of all these cases the signs of tricuspid regurgitation are directly deducible, and may be thus enumerated:—

1. Venous congestion (and the various morbid conditions which it gives rise to, as dropsy, epistaxis, hepatic engorgement, &c.)
2. Jugular turgescence and pulsation.
3. Strong impulse of the heart, coinciding with feebleness of the radial pulse.
4. The signs which indicate enlargement of the right side of the heart.
5. A bellows murmur, accompanying the systole of the heart, and situated over the region of its apex, but extending towards the right rather than towards the left side.

Of these, the first mentioned can alone be regarded as constant; for although there exist a patent right auriculo-ventricular opening, and free regurgitation, yet excessive dilatation of the right ventricle, especially if combined with softening of the muscular tissue, will, owing to the enfeebled condition of the heart, prevent the development of an audible *bruit.* (Case XII.)

In Dr. Todd's case, already alluded to, hematemesis was of

[a] Dublin Quarterly Journal, vol. v. p. 1.

frequent occurrence, and is no doubt correctly traced by Dr. Todd to extreme hepatic congestion.

It has been already mentioned that tricuspid regurgitation is not an unfrequent accompaniment of contraction of the left auriculo-ventricular opening, in an advanced stage[a]. In some cases of mitral narrowing, the bellows murmur is lost at this period; in others it is plainly distinguished to the very last. I am very strongly impressed with the idea, that in some instances at least, of the latter class, we are to connect the persistent bellows murmur with the dilated tricuspid, and not with the narrowed mitral orifice; in other words, that it depends on tricuspid regurgitation. This explanation assists in removing the apparent anomaly, occasionally met with, of a distinct systolic *bruit* (which denotes free regurgitation), coinciding with extreme mitral narrowing; and that it involves no improbability will appear from a brief review of the morbid changes which are in progress in such a case. The mitral orifice is undergoing a process of gradual contraction: hence, owing to a combination of causes, some of which I have already alluded to[b], the murmur which at first denoted that change becomes gradually extinguished. But in proportion as the left auriculo-ventricular opening becomes constricted, a patent condition of the right auriculo-ventricular opening becomes established, and a new source of murmur is thus developed (as Cases XIII. and XIV. abundantly prove). This murmur will with difficulty

[a] This relationship was first pointed out by Mr. Adams. To the same accurate observer we owe the explanation of the phenomenon of jugular pulsation, who proves its dependence on tricuspid regurgitation (Dublin Hospital Reports, vol. iv.). I have thought it unnecessary to enter on the physiological question so directly connected with this subject, as Dr. Stokes, in his recent work on "Diseases of the Heart and Aorta," has given it the fullest consideration, and has vindicated the originality of Mr. Adams' views on what has since been termed the "safety-valve function" of the tricuspid valve. Entertaining the same sentiments, I made the following remarks in a communication to the Pathological Society, when exhibiting the morbid appearances in the case of Fay:—"It is generally admitted, that whenever, from temporary causes, the pulmonary circulation is obstructed, the right ventricle is relieved fom the pressure of the accumulating blood by regurgitation being allowed to take place, by a separation of the flaps of the tricuspid valves. In this specimen there was a permanent obstruction in one of the great pulmonary trunks, a condition which would render this provision indispensable. The important physiological fact here alluded to was first briefly noticed by John Hunter, subsequently Mr. Adams, in the Dublin Hospital Reports, directed special attention to it, and showed its connexion with certain pathological changes of the heart. Of late years, in Guy's Hospital Reports, Mr. King has described the anatomical mechanism by which this regurgitation is permitted by the tricuspid valves, and which he has styled its 'safety-valve function.'"—January 24, 1852.

[b] Vol. xiv. of this Journal, page 362.

be distinguished from that which is of mitral origin, since both are synchronous with the systole of the heart, and situated over the region of the apex. Under the circumstances thus sketched out, the following order of phenomena would present themselves:—Loud systolic murmur in the earlier stages of mitral narrowing; gradual diminution and perhaps extinction of the murmur in the later stage; gradual development of free regurgitation through the right auriculo-ventricular opening, and reappearance of a systolic murmur, depending now on tricuspid, and not, as in the earlier stages of the disease, on mitral regurgitation. Such a train of phenomena I have distinctly traced on more than one occasion, though I am at present unable to sustain the explanation I have suggested by any proofs which could be regarded as unexceptionable.

Art. IX.—*Practical Observations on Cauliflower Excrescence, and other Cancerous Affections of the Os Uteri*[a]. By Robert Johns, A.B., M.B. T.C.D., L. & F. R. C. S. I., Member of Council of the Surgical Society of Ireland; late Consulting Accoucheur to St. Peter's Parochial Dispensary; Ex-Assistant Physician to the Lying-in Hospital, Dublin; Vice-President of the Obstetrical Society; and Chairman of the Midwifery Court of Examiners of the Royal College of Surgeons in Ireland, &c.

In contemplating the fearful ravages occasioned by cancer and carcinomatous affections of the uterus, and reflecting on the peculiar apprehension with which such diseases are viewed by those liable to their attacks, the physician becomes forcibly impressed with the importance of any curative measures which could possibly tend to their alleviation, and of the duty that must rest on him of communicating to his professional brethren any such measures, should they come within his knowledge. Cancer is, perhaps, not curable, but therefore is it the more necessary to determine the exact disease which shall fall under that category; for I apprehend there are some affections hitherto regarded in that light not only susceptible of relief, but permitting a radical cure.

It may be in the recollection of some that, in a discussion which recently took place at the Surgical Society on a fatal case of cauliflower excrescence of the os uteri, I hazarded an opinion that the fatal result was attributable to the circum-

[a] Read before the Surgical Society, May, 1853.

stance of an imperfect extirpation of the disease; and that had the cervix uteri, which is always engaged, been removed along with the morbid growth, the case would have terminated otherwise. I also stated my view of the best mode of performing the operation, namely, by applying a ligature to the cervix for twenty-four or thirty-six hours to prevent hemorrhage, and then removing the entire by the knife. I am now enabled to present a case illustrative of these observations; but previously, perhaps, it may be advantageous to consider the general views under which this class of diseases is regarded by the profession.

I will not now enter into a review of all the different opinions that have from time to time been advanced as to the real nature of this affection, as I believe that now-a-days there exists almost an unanimity on the subject, but I shall content myself by alluding to those of some of the principal authorities on the disease.

Dr. John Clarke, of London, who was the first to describe it, says, "that it may occur at all ages, is always fatal; that many of the symptoms which characterize cancer are absent; and that he considers himself justified in giving to it the name of cauliflower excrescences, as it is in some degree descriptive of its structure." Sir Charles Mansfield Clarke "supposes the structure to be analogous to arterial or blood nævus (fungous hæmatodes of the French), caused, perhaps, by some of the small arteries near the os uteri having undergone morbid dilatation. He has seen it fatal at twenty years of age." Patrix describes it under the title of "cancer par exuberance." Virchow, Paget, and Professor Bennet speak of it as "epithelial cancer." Professor Anderson, of Glasgow, "as a peculiar form of encephaloid cancer." Lever classes it, together with cancer, under the head of "malignant diseases." Duparcque describes it under the title of "mural or mushroom-like cancer." Boivin and Dugès as "fungoid or encephaloid cancer." Simpson, "that it is a disease which in its ultimate course always takes a malignant action, whatever difference of opinion may exist as to its pathological nature in the incipient stages."

Having seen very many cases of the cauliflower excrescence within the last few years, my experience as to its comparative infrequency is at variance with that of Lever, but I agree with him, in common with others, as to its malignancy, and for the following reasons:—1. The universal cancerous aspect of the patient. 2. There being as yet no evident assignable cause for the disease. 3. Its hereditary tendency in some, cancer having attacked other members of the family in some form or other.

4. In many the lancinating pain of cancer being present. 5. Its frequent, nay, almost constant return after its removal by ligature or otherwise. And lastly, the microscope, in all cases where used, revealing its malignant nature. A portion of the tumour, which was broken off whilst adapting the touchee in the female who is the subject of the essay, was examined microscopically by Dr. Fleming, and he declared it to be highly malignant.

The clustered fungous cancer sometimes follows on granular ulceration of the os uteri, and is likely to be mistaken for cauliflower excrescence. May not this fact in some degree favour Sir C. M. Clarke's theory as to the pathology of the latter disease?

The amputation of the cervix uteri, for the cure of cauliflower excrescence, has been recommended, and successfully performed by Dupuytren, Lisfranc, Boivin and Dugès, Lever, Simpson, and others. Simpson says:—"If any radical operation and cure for this disease be attempted, the excision of the tumour, together with the whole of the vaginal portion of the cervix uteri, to which it is attached as a basis, appears to us the only measure which can at all be hoped to insure ultimate success."

Boivin and Dugès thus express themselves on the subject:—"The ligature may effect a temporary, though not a permanent, cure of this form of cancer; the same may be said of excision. The cure would generally, perhaps, be more certain, if the os uteri, or that part of it where the fungus was seated, were removed together with the excrescence or after its separation by the ligature."

In many of the recorded cases above alluded to the females had remained free from any return of the disease for several years afterwards; some of them had borne children at the full time[a]; no doubt in some relapse had taken place, but, in my mind, attributable to one of the two following causes. The partial or complete removal of the tumour without the tainted cervix, as in the case of Susan N., published in the Dublin Medical Press for December, 1849, as also in the case of Crawford in the twenty-sixth volume of the former series of this Journal; or, secondly, the system having been too much contaminated; or, as Duparcque says, "The organic predisposition which influenced the development of the primary affection might have created a relapse in parts of the uterus left by the

[a] Lisfranc was of opinion that abortion was inevitable in a pregnant woman whose cervix uteri had been removed.

intrument, although they were uninvolved at the moment of the operation."

The mode of obviating such a sad result in the one case is evident; and in the other might we not subject our patient to a line of treatment by arsenic, or some similar remedial agent, for months prior and subsequent to the operation? M. Hendriski, near the Hague, some years since told me, that he had frequently and successfully employed such means in the cancerous affections of the female breast. This suggestion, I think, may in a measure meet the objection to operation in certain cases thus urged by Lever:—"In my opinion," says he, "it is useless to remove the diseased portion, however favourable the case may be, unless we can remedy the cancerous diathesis which exists in these patients, and which leads to the development of the disease in the uterus, or in some other distant organ."

In some cases where cure was not complete, not only was life prolonged by operation, but the unfortunate sufferer had enjoyed comparative health, so as to have been able to attend to her several duties for months, even those of a most laborious nature, although she had been very much prostrated by debility consequent on the disease prior to artificial interference. Ingleby and Simpson have noticed this fact.

From my own, and the collective experience of others, I should say that the cases in which the amputation of the cervix uteri is indicated, and may be adopted with any reasonable hope of success, are extremely limited:—1. To those in which the disease is confined to the os or cervix, there being a sufficiently healthy portion below the insertion of the vagina into the superior part of the cervix uteri, for the application of the ligature or the knife. Within the last year and a half two cases, illustrating this fact, have come under my notice: the one a nurse-tender, who would not submit to any operation whatever; however, under the pretext of examination, I broke away the disease, and used the actual cautery ONCE: after which, for several months, she was able to and did follow her calling—but eventually the disease returned, and she died in *great torture.* When I first saw her the case was likely to be cured by operation; this shows with what rapidity this disease progresses. The other case is that of a domestic—but here the whole cervix is diseased; in her I removed by ligature as much of the disease as was possible, and used the actual and potential cautery. By the occasional adoption of the latter treatment, I have been enabled as yet to keep the disease in check. She is at present in service, and can hardly be persuaded that the

disease is not removed, as she has lost all her bad symptoms, and says she has not for years enjoyed such good health.

2. To those in which the affection is not curable by other means, is of a malignant nature, and not hereditary; the lymphatic glands and surrounding areolar tissue healthy, and no organic disease elsewhere.

Lisfranc declared that he operated with success in a case where the right ovary was engorged to four times its natural size, and that in six years afterwards the tumour was stationary, under appropriate treatment. Indeed, from his own account of himself, it would be difficult to say in what case this "indefatigable leveller of uterine necks," as M. Duparcque styles him, would not have operated.

The fact of the inguinal glands alone being enlarged, should not deter us from operating, as I have frequently known them when similarly affected in simple inflammation of the os and cervix uteri, to become of the natural size on the removal of the disease: the cause of their morbid condition, no doubt, having been irritation. Desault and Soemmering have alluded to this fact.

In some of the recorded cases of this disease, before alluded to, the female has been carried off by diseases not at all referable to the operation. This liability, in those suffering from uterine complaints to intercurrent affections, I have frequently witnessed; and during the last winter many of my patients have more than once been attacked by the prevailing epidemic of the season. I perceive, by the late edition of his work, that this fact has not escaped the notice of that acute observer and eminent uterine pathologist, Dr. Henry Bennet.

It may not be irrelevant to the subject to state here, that whilst advocating the operation of amputation of the cervix uteri, I wish it to be distinctly understood I would not adopt it in many of the cases in which it has hitherto been resorted to; and as Dr. Bennet's opinion and mine coincide as to its total inapplicability in other than cancerous affections, I think it best to transcribe his observations here. He says:—

"In speaking of the surgical treatment of hypertrophy of the cervix uteri, I have not hitherto even alluded to amputation of the enlarged neck, as I consider it an unjustifiable operation in those cases. Amputation of the hypertrophied cervix is difficult to perform, and is attended with great danger from hemorrhage, as is shown by Lisfranc's cases, many of which, no doubt, were instances of inflammatory enlargement. Moreover, it is next to impossible to remove the entire extent of the hypertrophy, which is usually connected with the uterus

by a large base; and what remains, generally speaking, soon assumes as great a development as before. I have seen several cases in which amputation of the hypertrophied cervix had been resorted to, probably under the impression that the disease was cancerous; but on close examination it was clear that a portion of the hypertrophied tissues only had been removed, and that the condition of the patient was but little improved by the operation. Amputation of the cervix is, in my opinion, an operation to be discarded from practice, except where cancerous or cancroid pedunculated tumours, growing from the cervix, are recognised in a sufficiently early period of their existence to render their entire removal possible, along with that portion of the cervix from which they proceed."

Dr. Simpson, when writing on the subject, remarks:—"I have excised the part when affected by chronic induration and thickening without carcinomatous degeneration; but I would now, most assuredly, by no means resort to it again under the same condition, as I believe that morbid state of the cervix to be quite removable by milder measures."

I have myself very frequently removed extensive hypertrophy of the cervix uteri, and also chronic induration with thickening in this organ, by other and safer measures than amputation, into the consideration of which I shall not at present enter, as I hope at no distant period to return to the subject. However, in illustration, I may be permitted to allude to one case. Not long since I was consulted by Mrs. L., who was suffering from extensive hypertrophy of the os and cervix, the posterior lip extending about half an inch below the anterior. On inquiry I found that another medical gentleman had amputated the latter some months previously, and had decided on a similar treatment for the posterior; but as the lady *had not received any benefit* from the operation, she determined not to submit to it again. When I saw her the disease had evidently been redeveloped in the anterior lip; and from her own account a very large portion had been taken away by the knife. I had the satisfaction of removing the disease from this lady, and of restoring her to a state of health which she had not enjoyed for years previously, by a treatment totally apart from excision.

Independent of the inadmissibility of this operation, when we take into account its very many serious consequences, as hemorrhage, phlebitis, hysteritis, peritonitis, metro-peritonitis, and extreme nervous depression, which are mentioned by Duparcque, Lisfranc, Pauly, Velpeau, Blandin, Hervey de Chegoin, Lever, and Simpson, and which all practical men know

are most likely to follow on its adoption, I think it is one that ought not to be had recourse to except in extreme cases.

With a view of preventing this disposition to inflammatory affections now alluded to, Duparcque recommends one or two preparatory bleedings for some days previously to operations. Of this practice I do not approve, as, according to my experience, females afflicted with diseases calling for amputation of the os and cervix uteri are, when they apply for relief, most generally too much weakened by the disease to bear the least depletion; and besides, I consider the prophylactic treatment by mercury to be as efficacious and less hazardous; and it is one I always recommend and adopt in any case which I may think likely to be followed by inflammation. The eminent success which follows the operations of the French surgeons appears to me, in a great measure, to depend upon the employment of a similar line of treatment.

Mrs. ——, aged twenty-nine years, a scrofulous, delicate-looking woman, married eight years, and mother of four living children, was admitted into the Meath Hospital on the 10th of November, 1852. She stated that she had been in bad health for a year or so previously. Her labours were quick, natural, and followed by good recoveries. The catamenia, which were painless[a], first appeared at sixteen years of age, had regularly returned monthly, except during pregnancy and lactation, up to the seven months immediately preceding her admission, during the whole of which period there had been a continued and excessive hemorrhage per vaginam, confining her for the most part to bed. The face was of a dirty yellow, anemic, and malignant aspect; the eyes sunken and surrounded by a dark circle; the digestion much impaired, with loss of appetite, flesh, and strength; the bowels regular, but much distended from flatus. She suffered very much from constant giddiness, accompanied by fear, but without cephalalgia, from anhelation on the slightest motion, much pain over the hepatic region, in the breasts under the nipples, across the loins, accompanied by weakness, and over the sacrum and down the legs; there was also a constant burning sensation over the uterus, a darting[b] lancinating pain up the vagina, with uterine inertia and great enlargement of the inguinal glands. For a

[a] Some authors have stated that the great majority of females suffering from cancerous affections of the womb have had dysmenorrhœa in early life. In very few of those whom I have seen for some years had there ever been any derangement of menstruation during that period.

[b] Sir C. M. Clarke states that the pain in this disease is never of this character.

short while antecedent to the hemorrhage a vaginal discharge, of a purulent and sometimes watery nature, was present, which latter was not at any time copious, nor preceded by moisture of the parts. The hemorrhage was excessive from its invasion, and not gradual, as in most cases. On examining digitally, about half way up the vagina, which was far from being relaxed, there was found a large, firm, lobulated, insensible tumour, growing from and embracing the entire of the os uteri, lying obliquely against the sacrum, and in consequence of its brittleness breaking down with loss of blood on the least degree of pressure. The speculum being used was immediately filled with blood, which, being removed by a piece of sponge, revealed the rough tumour already described, of a bright flesh colour. The os was patulous, but the cervix appeared healthy above the growth.

On the 12th of November I threw a ligature of twisted dentists' silk, by means of Gooch's double canula, around the cervix uteri, as high up as I possibly could reach, being convinced that the more of the sound tissue I removed the better would be the chance of success. I experienced some difficulty in this manœuvre, in consequence of the obliquity of the uterus, the softening[a] of the ligature by the discharges, and the contraction of the vagina on the tumour, notwithstanding its size, the greater part of which came away whilst thus operating.

Almost immediately on the application of the ligature, the patient complained very much of pain in the uterus. Fearing subsequent inflammation, I prescribed a pill containing four grains each of hydrargyrum cum cretâ and Dover's powder, to be taken every third hour. In the evening it is reported that the pain in the uterus had not all abated, but there was no abdominal tenderness. It not being considered advisable to loosen the ligature if possible, she was ordered a draught containing half a drachm of ipecacuanha wine, two drachms of water of acetate of ammonia, and half a drachm of tincture of opium, in an ounce of water, and a cathartic draught of rhubarb and sulphate of potash in the morning.

13th. She did not sleep during the night; pain much abated, but a great amount of tenderness over the uterus, with quick pulse; the ligature was tightened, and the vagina was syringed with warm water. The abdomen was ordered to be frequently fomented, and a pill containing half a grain of calomel, a grain

[a] In two cases since operated on I have used a ligature made of whip-cord, which is not thus affected. The same ligature was employed in both cases, and it can be used again if required.

of blue pill, and a fourth of a grain of opium, to be taken every second hour, with, if requisite, a draught containing forty drops of laudanum at bed-time.

14th. She slept well during the night; pain and all tenderness completely removed; she complained much of her mouth being sore: all medicines to be omitted. The ligature on being tightened gave way. The case not being urgent, all further interference, with the exception of syringing out the vagina, was deferred until next visit.

15th. She passed a very restless and sleepless night; tongue foul, pulse quick, and in fact a high state of irritative fever present. On making a vaginal examination I discovered that the cervix uteri had been partly cut into by the ligature, and that the tumour was in a state approaching to gangrene, with a dirty fetid discharge issuing from the vagina, to which state of matters I attributed the fever. Under these circumstances, fearing that phlebitis might ensue, I introduced Weiss' trivalve speculum, drew down the os uteri by means of a double vulsellum, and excised the cervix with a blunt-pointed scissors curved on the flat, Messrs. Smyly and G. H. Porter kindly assisting. No hemorrhage, ever so trifling, followed the operation. I then syringed out the vagina, and passed the uterine sound, which I did each day during her stay in hospital. I used the actual cautery on two occasions subsequently to the removal of the cervix, with the twofold view of destroying any portion of the disease that might possibly have been left behind, and of expediting cicatrization.

From the day of the removal of the cervix, the vaginal discharges ceased: she left the hospital, the wound being perfectly healed, on the 22nd of November, which was the eleventh day from the application of the ligature, and the eighth day from the amputation.

On the 21st of December this female was menstruating *without pain;* she had then become fat, had regained her natural healthy colour and spirits; the enlargement of the inguinal glands had disappeared; and she was in the enjoyment of better health than she had been for years.

Which of the following reputed predisposing causes to this disease, as "injury to the cervix during labour; local irritation occasioned by delivery or other excitement of the uterine organs; excessive cohabitation, syphilis, or early interruption to connubial intercourse," was at fault in this case, I am unable to say; but, as far as I can collect, neither of the last two-named had its share.

Cicatrization of the wound, consequent upon operation, took place much earlier in this than in any other case which I find recorded,—a fact I am much inclined to attribute to the use of the actual cautery. Here the parts were perfectly healed on the eighth day after the separation of the cervix, whereas I find that in others the process was not completed for a period varying from twenty days to six months. Fabre, in the "Bibliotheque du Médecin-Praticien," vol. i., in speaking on this subject, says:—"Si après 15 jours ou 3 semaines il n'y a pas d'accidents, la plaie marche vers la cicatrisation, qu'on favorise souvent avec quelques légères applications de nitrate de mercure,—six semaines et six mois seraient, d'après M. Lisfranc, les limites extrêmes du temps nécessaire à la guerison."

On the removal of the cervix in this case, I passed the uterine sound each day until the healing process was completed, and for some time afterwards: a practice I have been in the habit of adopting for some years past in cases where disease of the cervical canal, or extensive ulceration of the os uteri, requiring the use of powerful caustics, was present, as in such there is a great tendency in this cavity to narrow or close up,—in the one producing dysmenorrhœa, and in the other amenorrhœa. Very recently I had under my care cases illustrative of this position, the subjects of which were cured by the occasional passage of the sound, &c.

Dr. Lever, in his very practical work on Diseases of the Uterus, says:—"In one case where the os uteri was removed, the patient suffered very considerably at the menstrual periods, and this seemed to depend upon the very small aperture to the womb caused by the cicatrization of the divided structures." Boivin and Dugès also mention a case of dysmenorrhœa consequent upon the amputation of the cervix uteri. And Lisfranc, in speaking of this occurrence, says:—"l'introduction d'un stylet pratiquée de temps en temps dans l'orifice inferieur de l'uterus, empêcherait l'obliteration; si elle existait, pouvrait, ou y remédier avec le trocart ou le bistouri, l'experience en decidera."

Mrs. ——, the subject of this communication, suffered very much from a symptom to which no author, that I am aware, has even alluded, and yet so frequently have I observed it in conjunction with inflammatory and ulcerative affections of the womb, that I look upon it as pathognomonic, so much so, that, were every other symptom of disease absent, or apparently so, in a case where it was present, I would pronounce some faulty condition of this viscus to exist, as I have on more than one occasion done. In many cases it seems to mask the other symp-

toms, which become developed as it gives way, or are, as it were, mapped out under treatment. I allude to a species of giddiness, so well described by the unfortunate sufferers as a pirouetting and tendency to fall, accompanied by a sense of extreme terror. In some cases there is headach, but it is by no means a necessary concomitant. Patients generally suffer most from this symptom whilst walking or standing, but, in some cases, it is equally severe in the sitting or recumbent posture. I remember, some years since, seeing a lady throw herself on the floor of her drawing-room, and try to hold on by the ground like an inebriated person.

I think I am justified in saying, that this case bears against Sir C. M. Clarke's idea of the advantage derivable from the use of astringents in cauliflower excrescence. He declares "that they strengthen, brace, and contract the vagina, that it may act like a bandage on the tumour, and thus limit its growth" for here we had a very much contracted vagina, yet a very large amount of disease. Boivin and Dugès think that "if astringents present any real advantage, it is, however, by their action upon the growth itself, and upon the vessels with which it is traversed."

There was, as already remarked, a vast amount of constitutional disturbance produced by the application of the ligature in the case now under consideration; whereas, in a few of the recorded cases no such effect followed upon its use, a circumstance which, I am strongly inclined to think, can be satisfactorily accounted for by supposing it to be attributable to the fact of the ligature in some having passed through the diseased[a] mass, and in others having included but a small portion of the os uteri; whereas in this female all the cervix had been removed. The absence of amenorrhea or dysmenorrhea after operation can be similarly accounted for.

Perhaps I may be permitted to infer from the above fact, that a more favourable prognosis as to the success of our operation may be given, where pain is experienced, and constitutional disturbance sets in on the application of the ligature, as we may take such as negative proofs of its having been thrown around a healthy portion of the cervix; for it is allowed by authors, that in all cases the diseased part is insensible to pressure.

From what has been already stated I would draw the following deductions.

[a] In the case of the domestic servant before alluded to, the ligature passed through the diseased cervix, and no constitutional disturbance took place.

1. That cancerous affections, when confined to the cervix uteri, are in many cases successfully treated by removal.

2. That the only chance of preventing a return of the disease is to remove in a healthy part the cervix from which it grows.

3. That the best and most expeditious operation is amputation of the cervix in a part free from disease.

4. That as hemorrhage is very likely to follow such an operation, a ligature ought to be thrown around the cervix, as high as possible, for twenty-four or thirty-six hours before amputation.

5. That cauliflower excrescence is a disease to which this treatment is very applicable; as it rarely if ever extends beyond the neck of the uterus, and as it is one of the forms of cancer which is least liable to return after the excision of the parts.

6. That amputation of the cervix, in hypertrophy and such like affections of this part, which are curable by simpler means, is not justifiable.

7. That extreme prostration alone, or enlarged superficial inguinal glands, ought not to be a bar to operation.

8. That as inflammation in many forms is likely to follow this operation, an appropriate preventive treatment ought to be adopted.

9. That the use of the actual cautery expedites cicatrization after the removal of the cervix.

10. That as amenorrhœa and dysmenorrhœa are likely to follow on extensive ulceration of the os and cervix uteri, and also when these parts have been removed, the uterine sound ought to be passed from time to time during cicatrization, and for some time afterwards.

11. That with a view to correct the cancerous diathesis, the patient might be put under a course of treatment for some time previous to, and subsequent on, the operation.

12. That a particular form of vertigo is a frequent symptom, and an important diagnostic of uterine disease.

13. That as females suffering from uterine affections are very prone to intercurrent affections, which sometimes prove fatal, every means should be adopted to prevent their occurrence.

14. That in all cases of suspicious vaginal discharge, manual examination *at least* ought to be employed.

Art. X.—*Account of a Surgical and Invalid Bed*[a]. Invented by Andrew Knight Young, Esq., Surgeon to the Monaghan Infirmary.

As the bed, of which this is in some degree to form a notice, has stood the test of years' experience, and has excited some attention, I think it advisable to give a description of its uses and capabilities, which, with the aid of engravings, will probably have the effect of directing the attention of the profession more generally to it; and I would address myself especially to those, who have the charge of public institutions in country places, where they cannot always command the assistance of persons qualified to take upon them the care of those suffering under severe accidents, or who have undergone serious surgical operations.

Having had many troublesome cases under my care in the year 1847-48, in the Infirmary of the county of Monaghan, and more than usual difficulties to contend with, I asked myself was it not possible that some means could be invented by which a variety of changes might be made in the position of the patients confined to bed, and which changes could be more extensively and conveniently produced than those by the ordinary and cumbrous bed-chair. I also was anxious, if possible, that each bed should form within itself a surgical apparatus capable of extended application, so that wherever a bed was found for an accident, *there* was also the chief machinery by which fractures could be treated. Upon turning the matter over in my mind for a little time, I made a sketch of a plan by which I hoped that not only the positions of the head and shoulders could be readily changed, but those of the lower extremities with the body; also of the legs and thighs respectively to one another. Accordingly, under my directions, I had first a tin model prepared from my sketch by a brass-founder in this town; and, ultimately, by the permission of the Governors of the Infirmary, this artist, Mr. M'Coy, made an iron bedstead on the model thus prepared. On putting the first bed into use I found, as might have been expected, that many alterations suggested themselves; and also, that, with a little care, an apparatus of very extensive use to the invalid might be perfected without great trouble. After careful consideration, and much patience on the part of Mr. M'Coy, I at length obtained a bedstead which, from experience since then, I have every reason to congratulate myself on; for I have found it not only

[a] The Bed was shown at the Great Industrial Exhibition of Dublin, in 1853.

of incalculable benefit to those suffering from either disease, accident, or operation, but a means of saving a vast loss of time and trouble to the attendants. To obtain the first of these objects, even in any degree, is next to the saving of life, the chief aim and endeavour of the surgeon; and, if he can simultaneously save the time and trouble of the attendants, I need hardly say of how much importance this is where the nursing of sixty patients, in a general medical and surgical hospital, devolves upon the almost unaided powers of two women, as is the case in the Infirmary under my charge. To have accomplished both these ends, then, is a cause of much pleasure to me; for not only can the patient's position be changed as often as he requires, and more perfectly to his satisfaction than by the aid of the most careful bolstering, but it is done immediately, without any inconvenience to himself, and with so little trouble to the attendant, that her time is considerably economized, and, consequently, much more attention can be paid (when she has several bad cases under her care) to the many other duties devolving on her. In the bed made by Messrs. Kennan, of Fishamble-street, Dublin, for the Great Exhibition of 1853, I have introduced some improvements in the machinery, by which the positions of the lower extremities are to be altered, although there is not anything in the principle different from what I have been using for years past. The change I allude to is now caused by the gradual operation of the screw instead of the rack, which latter I observed was too abrupt in some instances where the patient was suffering under an irritable state of the nervous system. This is the only change of importance I have made, and will be more particularly alluded to when describing those compartments of the bed it operates on.

A glance at the engravings will show that the bed, which is of iron, is outwardly of the plainest and most ordinary kind. The movable parts are contained within this outward frame. For the purpose of description I have divided these inner and movable parts into *six compartments*,—the numbers commencing at the head-board, which is called No. 1, and going progressively towards the foot of the bed to that part of the apparatus which supports and includes the foot-pieces, and which, taken collectively, is called *compartment* No. 6.

To begin, then, with *compartment* No. 1, a reference to the engraving (Fig. 1) will show that this compartment forms the head-board of the bed; it is hinged to *compartment* No. 2. When No. 2 is horizontal, the 1st *compartment* stands at right angles to it, at this time acting as the head-board. And when No. 2 is elevated, No. 1 is made to change to the horizontal,

fig. 1.

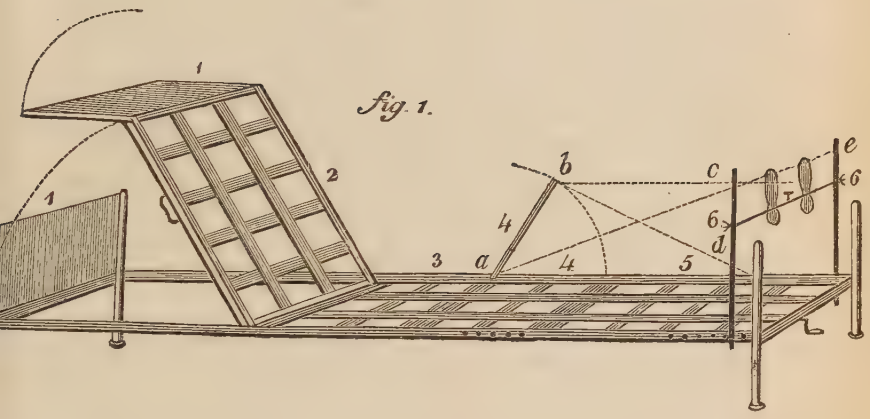
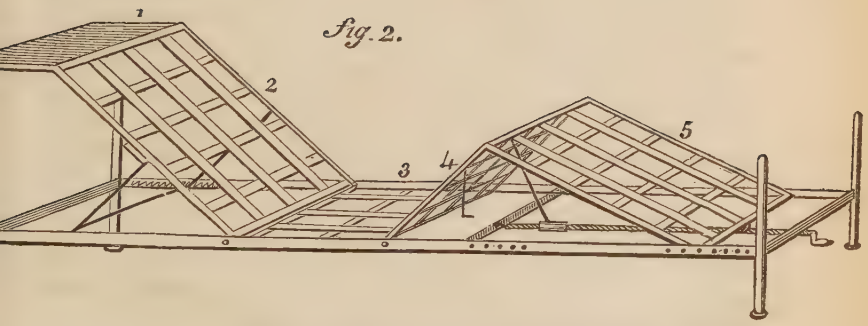


fig. 2.



Surgical and Invalid Bed, invented by Andrew Knight Young, Esq., Monaghan. Manufactured by Messrs. Kennan and Sons, Fishamble-street, Dublin.

and by a simple contrivance to maintain this position: and thus support the pillows, which otherwise become inconvenient by sliding behind the back and shoulders of the invalid.

The 2nd *compartment* supports the shoulders and body; it is furnished with a handle on each side. Should the invalid express a desire to be raised, the attendant has only to take hold of one of the handles and raise this compartment to the elevation required; when this is attained, there is no necessity for doing anything to keep it so,—the simple contrivance of a frame falling into a rack, as may be seen in Fig. 2, secures it in this situation; and the position is capable of any alteration, from the horizontal to an angle of 90°. The alteration towards the horizontal is just as easily accomplished, by merely taking hold of the frame which falls into the rack, while the other hand seizes the handle, by means of which, when the frame is liberated, the upper portion of the body may be gradually lowered either entirely or to the angle required.

It will now be easily understood how immediately every elevation can be produced at will and varied without trouble, as often as the real or imaginary comfort of the invalid requires. I need hardly point out to those who are frequent visitors to or attendants on the sick what an advantage this alone presents; and I need not call to their remembrance how often the most careful propping on the bed-chair with pillows, placed by the hands of affection and solicitude, fails to produce that exact degree of satisfaction which the sufferer so plaintively demands. It is true that in some cases such ideal satisfaction can never be obtained: but I have very often seen the great solicitude on this point tranquilized by the patient finding that at a moment he could be raised up, or let down, just as his sick whim dictated, without the least degree of exertion on his own part, and without almost any trouble to the attendant. Should an invalid who has been in the sitting posture become suddenly weak or faint, what hurry and confusion we often see the attendants thrown into to pull away the pillows or remove the bed-chair, and the delay and embarrassment they create by thwarting each other's endeavours to produce that effect they are all so anxious for. With this bed there is neither confusion nor delay; the invalid's position can be instantly and without personal annoyance changed as required, by a single and unaided attendant,—a circumstance in itself of no inconsiderable importance.

I will point out another case in which I have found this power of altering the position of the greatest benefit. Not very long since I had a man in the Infirmary who, from walking

out of a drawing-room window into an area, suffered fracture of the femur, and became maniacal in the course of treatment. It was found necessary to restrain him by means of the laced vest, which was fastened by the neck and arms in the usual way to the bed-frame; whilst the limb had adapted to it the double-inclined plane formed by the lower compartments of the Invalid Bed, as will be hereafter described. The great advantage found in this case was, that by making the neck and wrist straps fast to the *inner frame*, the unhappy man's position from the horizontal to the erect position could be altered at his whim, without in the least degree permitting to him a greater degree of freedom; the tranquilizing effect of this on the poor sufferer was occasionally wonderful.

The 3rd *compartment* is stationary, and supports the buttocks of the patient. It has often been suggested to me that an improvement should be made here, so that the dejections might pass through an aperture in the mattrass, and be received into a pan beneath the bed-frame. I had considered all this previously, and rejected it for the following reason: I never have attended, for even one week, in a room where such a contrivance was in use, that I did not find the atmosphere therein most unhealthy, owing to the, I believe, unavoidable soiling of the mattrass at the aperture, over which I never yet have known a weak patient so exactly placed as to prevent this occurrence. I need not say anything of the difficulty of removing or replacing the plug for this aperture, or allude to the intervening sheet, &c. &c. My first objection I have so constantly experienced, that I look upon the contrivance as one most injurious to the healthy state of the sick-room. On the pan being required, I have not had complaints of any difficulty in its use on this invalid bed. By elevating the shoulders in the way above described, the patient can, by the aid of his arms, raise himself sufficiently; or, if too weak, the attendant passes the arm under the thighs or body (according to circumstances) whilst the pan is placed under the pelvis. I know that in cases where very terrible injury has been done to either one or both lower extremities, or where amputation was suffered, or where violent injury has been done to the trunk or upper extremities, and where there have followed excessive fever and constitutional disturbance, that I have not had any complaints of inconvenience arising from this cause, bordering on the vexations I have heard of where similar cases were treated in the ordinary beds, or those furnished with the aperture and plug. I have, therefore, as I said before, rejected this contrivance,

believing it not to be attended with the convenience stated, and knowing it to be a cause of impurity in the chamber.

Compartment 4 moves immediately below the permanently horizontal No. 3, and being hinged with No. 5, they are conjointly capable of very extensive and useful movements. These two compartments, 4 and 5, are, in the present *surgical and invalid bed*, acted upon by an endless screw, set in motion by a small winch-handle at the foot of the bed: No. 4 can, by its means, be passed from the horizontal plane through all the angles within the quadrant: and No. 5 necessarily follows this, whether to form a *double inclined plane* for the treatment of fractured femur; or the *ascending plane*, from the pelvis to the heel, for the treatment of the *fractured patella* or its ruptured ligament; or a *horizontal table*, for the treatment of different injuries, or for a change of position, which to the bedridden is of indescribable comfort. On reference to Fig. 1, one of the sides of No. 4, *a b*, is represented as being raised, and is shown to be the radius of the quadrant represented by the dotted curved line described through its free extremity. To any angle within these 90° No. 4 can be elevated, and there retained by means of the endless screw, which in Fig. 2 is shown to act under the bed-frame. Now, as the utility of the double inclined plane is familiar to every surgeon, I have no doubt that many have experienced the trouble and annoyance of adapting the ordinary apparatus for producing it to the beds in common use. In this bed I am describing, *the bed itself forms the double inclined plane*, thus doing away with all the extraneous, cumbrous apparatus, which is not always to be had in the vast majority of instances; and with the aid of *compartment* No. 6, meeting almost every case in which such an apparatus can be required. Of course the common pads, bandages, and side splints or plain laths, will be required to complete the arrangement, but these can be readily procured.

Now it will be carried in mind that No. 4 may be elevated to any pitch required, and that No. 5 will form any angle with it towards the frame of the bed, or will project in a direct line, whether No. 4 be lying flat, or whatever elevation *it* may be raised to. We thus in the first instance have formed between these two compartments a *double inclined plane*, as shown by *a*, *b*, *b*, *d*, in Fig. 1, and more plainly in Fig. 2, and this at will, to any angle required by the smoothest possible movement. I need not dwell upon the great advantage this will afford to the comfort of the patient, and the satisfaction of the surgeon. Those in the practice of the profession will easily appreciate it.

The *patella splint* is the second apparatus to which these compartments may be easily converted. As Nos. 4 and 5 are connected by a peculiar hinge, it is only necesssary that No. 4 should be raised to the pitch required, and then No. 5 elevated by the hand to form a direct line with No. 4, when it immediately becomes fixed in this continuous position and remains so. This being the case, if it is found necessary during the treatment of the fracture, for any purpose (the relief, for instance, which a slight change of position will afford) to elevate or depress the limb, the only thing to be done is to act on the screw by means of the handle at the bed-foot, and the required change is accomplished by the easiest and most stealthy of all movements. I have by means of this treated rupture of the ligamentum patellæ, caused by playing at "leap frog," and produced so much benefit to the patient that afterwards, although an active and powerful man, he suffered scarcely any inconvenience from this very serious accident.

The *horizontal plane* is the next position capable of being produced by *compartments* 4 and 5 acting on one another. On referring to Fig. 2 it will be seen that a hook hangs from the *compartment* No. 4, and that in the outside frame, a little below this hook, and nearer to the foot of the bed, several holes are pierced. To produce *the horizontal plane*, elevate No. 4 to the pitch required by means of the screw, then project No. 5 horizontally from No. 4; by passing the beak of the depending hook into one of the holes pierced in the bed-side; this position is firmly retained, and cannot be altered without removing the hook from the hole in which it had been placed. The production of this simple movement, which, I confess, I intended merely for a change of posture to those who were weary and bedridden, has been of much more extensive benefit in practice than I originally supposed it would, and I cannot express how much aid I have experienced by its means in treating numerous fractures and injuries of the lower extremities. As to the comfort expressed by the weak and weary on occasionally having their limbs, without exertion on their part, raised up and let down, I shall not attempt a description, and I have the frequent satisfaction of finding it nearly as useful in the treatment of those who have the misfortune to be confined by serious accidents, as it is comforting to the sufferer prostrated by constitutional disease. The dotted line *b*, *c*, in Fig. 1, from the free extremity of compartment 4, indicates the horizontal plane thus formed at nearly its greatest elevation. The height of this plane can be reduced as low as

four inches off the level of the frame, and to any elevation between the extremes.

I have now to describe the foot-pieces, which, with their perpendicular and transverse supporters, screws, hinges, and *foot-pieces proper*, form the 6th *compartment*. It may be seen, on examining Fig. 1, that several holes are pierced in the outside frame of the bed, extending from the footpost upwards in the direction of the bed-head; the opposite side of the frame is symmetrically pierced: these holes are *tapped;* a perpendicular rod furnished near its base with a joint may be fastened to the bed-frame by a male screw passing through this rod to one of the holes in the frame; the same may be exactly done at the opposite side of the bed. These two perpendicular rods are connected to each other, if *necessary*, by a transverse divided branch, which is made to slide up and down on the others, and retained, where required, by small thumb-screws marked in the engraving. On this transverse branch one or two foot-pieces of wood are adapted, which by the simplest contrivance may be placed at any elevation from the horizontal frame, and set at any angle required; whenever they are adapted they are by the use of the thumb-screw firmly retained,—and the foot-pieces themselves may be set close to each other, or at any distance from one another, or singly, and at either side; or, as may be required where former lameness has existed, longer or shorter respectively towards each other, so as to meet the circumstances of each case.

The covering of the bedstead I make use of in my own house, where I have one furnished with brass posts and a top rail for curtains, is a mattress made with straw and the split brier, like the common beehive, and not much thicker; it is constructed in portions each the size of a compartment, and they are joined by the brier or cord to one another, so that they are connected as it were by hinges, and follow the movements of the bed. This mattress has laid over it another of the very best curled hair, well stuffed and tufted, and from four to six inches thick,—less thick of course over compartments 4 and 5 than over 2 and 3, which support the head, shoulders, and body; it is made in one piece, and very readily adapts itself to the different alterations of the bed-frame. The beds we use in the Infirmary, with two exceptions, are of *alva marina*, a material which has not given the satisfaction we were led to expect, as it is generally damp when we receive it, and soon becomes sodden and so hard that it is much complained of from this cause until the patients become accustomed to it.

The use of curled hair, except in the two instances alluded to, we are precluded from using owing to its great expense; and the temptation its value holds out is such that we fear the unfair loss thereof would prove very considerable.

In conclusion, the aid I have experienced by the use of this bed, which any common attendant may become familiar with the management of in ten minutes, has been such through a considerable period of hospital practice, that I have felt myself bound to make the apparatus known to the public. I have not urged its adoption as strongly as I felt prompted to do, from the feeling that it is an invention of simple construction, so easy in its application, and so extended in its uses, that it only requires to be known to insure its adoption.

I shall merely add, that I have felt great satisfaction at the promptness, attention, and accuracy with which the Messrs. Kennan, of Fishamble-street, Dublin, have carried out all my suggestions in the construction of this bed, and that I have authorized them to make it on my plan.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Diseases of the Heart and the Aorta. By William Stokes, Regius Professor of Physic in the University of Dublin, &c., &c. Dublin: Hodges and Smith. 1854. 8vo, pp. 689.

In the course of the last thirty years the name of Dr. William Stokes has gained an extraordinary celebrity in connexion with the Irish Medical School. Of the many ardent cultivators of medical science, who have laboured in that interval to shed lustre on our native land, few have equalled, and certainly none surpassed, the author of the Treatise before us. Not that he has been a voluminous writer, but his reputation has sprung from the commanding fact, that originality of thought, vigour of reasoning, and utility in purpose, have invariably formed the combined characteristic of his memoirs.

By the readers of this Journal, in particular, these remarks will be deemed trite. At the same time, none can so fully appreciate the merits which they express. It was in this Journal that the progress of that clinical study, which he so zealously and indefatigably cultivated in the wards of the Meath Hospital, was from time to time promulgated to the world; and our readers can well remember the many interesting facts, which carefully studied cases, in the hands of his colleague—our late eminent and deservedly esteemed friend and contributor, Dr. Graves—and himself, elicited, and which formed the very soul of the former series of this periodical.

We shall be pardoned, then, if, in submitting a notice of this work to our readers, we lay ourselves open to the charge of being considered expositors rather than reviewers. We cannot but acknowledge some feeling of this kind to have passed through our minds when looking, for the first time, upon

these pages, which confessedly "seek to embody the results of clinical observations, continued, almost unremittingly, for upwards of a quarter of a century." Indeed, in the matter of influencing the opinion of the profession, as to the merits or otherwise of a work proceeding from the matured pen of an author whose name is a "household word" amongst us, the critic's occupation may be deemed void. This book will be read, and with avidity, by every practitioner who appreciates the rational and scientific treatment of disease, and this without reference, we may safely say, to the dictum of the reviewer.

Nevertheless it is our duty, and we feel it to be a pleasing one, to present such an analysis as may put our readers in possession of the new facts which the author has adduced upon the diseases of the heart and the aorta, the use he has made of what data have been already established, and the manner in which he has accomplished the work.

In the first place, let us understand what is the object our author held in view in publishing the work. It does not aim to supersede the valuable treatises by Hope, Latham, and others. It is not a work on the physical diagnosis of cardiac disease, expressly as such. Nor is it a complete treatise on this branch of pathology. But it is a book incomparably more valuable than a host of systematic volumes. It is a purely clinical monograph, which "attempts to convey to others the state of the author's mind, the conclusions which he thinks may be safely arrived at, and the doubts and difficulties which he has been unable to solve, or to remove." He has "made use of pathological anatomy, and the physical diagnosis, only so far as these subjects bear on the every-day practice of our profession." We are not, therefore, to expect the enunciation of *every* fact connected with cardiac pathology, diagnosis, or treatment. On the other hand, every important practical point, which involves broad principles of treatment, should naturally find a place in it.

We are induced, from a careful perusal of this work, to think that, while bearing the characteristic features of our author's well-known style and mental habitude, it is one of a class of books which are embodying more and more fully the genius of the present age in medical literature. Any one who has narrowly scanned the indications presented, of late years, in the progress of medical science, must have taken notice of the gradual but distinct development of an eclectic school. The era of pathological anatomy which marked the beginning of the present century is fading before the dawning light of a period which seems to have already embraced the prevailing

views of the medical world. We do not now look, as of old, to anatomy or physiology alone, to explain the course of medical phenomena. We have not now recourse to mathematical formulæ or metaphysical hypotheses to guide us in the management of disease. We do not now imagine that the operations of the economy are mainly of nervous or humoral origin; or, still less, that the human body is nothing but a collection of solid organs, each of which is the centre of diseased action. On the contrary, we discard all such partial views, and, relying on the sequence and coexistence in which Nature alone places her phenomena as irrefragable data, we aim at a position which we expect may be ultimately attained; from which the physician may discern the entire of the morbid process in all its relations, and lay down, of course within limits, an unerring line of treatment. We say, we believe that such is the tendency. We think we see, in the writings of the best clinical observers of the present day, the strongest evidence that they are guided in their apprehension of disease more by the sum total of deranged action, in any given case, than by any partial view of a single lesion, howsoever important.

Our author seems to acknowledge this growing change in medical opinion by a casual observation made in his Preface, when he refers to a tendency, still too prevalent in many schools, which would base the diagnosis of disease, in great part, if not entirely, on the consideration of purely physical signs to the exclusion of that important class of phenomena which, for want of a better name, we are obliged still to call "vital." And again, at page 342, he more pointedly enjoins the necessity for a higher exercise of mind, and a more comprehensive reflection, than that required for the observation and record of isolated facts in pathology:

"He must not only," he says, in truly eloquent language, "give due weight to the existence of separate phenomena, and to the results of combinations of diseases, but he must study conditions which are beyond the reach of the pathological anatomist, and learn to ignore the existence even of manifest organic alterations. While he bears in remembrance the ascertained facts supplied by modern investigation, he is to go beyond them, having an eye to the general rather than the particular, and to found his diagnosis, prognosis, and treatment on that broad basis which includes not alone the effects, but the causes and special modifications of disease. Thus only can the new medicine be advantageously combined with the old. Thus only can that kind of skill which is, as it were, the instinct of the thinking man, be produced—the true *mens medica*—enabling us to act rapidly and successfully in opinion and practice, unconscious, too, of any effort of memory or complicated reasoning

process. This is the great desideratum in medicine, when we are called on to deal with varying combinations of local diseases, and general morbid conditions. Accurate observation and accumulated experience are necessary for its attainment; and yet it is more accessible to some than to others. A few, indeed, seem incapable of acquiring it; and hence it is that, with a more limited experience, the mind of one man shows more brightly than that of another. In medicine we have to deal with ever-varying phenomena; the vital condition of organs cannot always be inferred from their physical state, nor the influences which act on the entire economy be explained by anatomy. Were it otherwise, medicine would be an easy pursuit, but no field for this exercise of mind, which is at once its difficulty and its glory."

In order to show still more clearly that the eclectic is really the cast of mind which the work before us indicates, we shall adduce a few more examples from many which pervade its pages. Speaking of Hope's treatment of pericarditis, he says:—"Without denying that in some cases such a course as is here indicated may be proper, we must not forget the effect which this advice may have on some of our brethren, whose minds are not sufficiently purged of the erroneous doctrines of inflammation, so long the opprobria of our schools of medicine and surgery." At page 86:—"In two cases especially,—namely, cerebritis and pericarditis,—we find the greatest timidity in practice with respect to the use of wine." And at page 90:—"No man is fit to treat general disease or local inflammation, especially its secondary forms, until he has conquered that fear of stimulants which a long course of erroneous teaching has instilled into his mind." At page 132, speaking of chronic diseases of the heart:—"Every practical man," he says, "knows that isolation is the exception, and complication the rule. Hence one reason why disease at the bedside so rarely corresponds with its description in books. Its combinations vary infinitely in their nature and number; and we often find, particularly in cardiac disease, that it is the more recent and least developed affection that produces the most prominent physical signs." At page 156:—"It is hardly possible to overstate the amount of mischief done in many cases of chronic heart affection by practice founded, not on experience, but on a false theory, which leads to the adoption of a general and local antiphlogistic treatment." "Above all things, we must avoid injuring the cause of practical medicine by laying down rules of treatment founded upon insufficient data."

The following passage, at page 609, is replete with the re-

sults of profound judgment and reflection. Speaking of the difficulty of tracing aneurism of the thoracic aorta, he says:—

"The error of declaring the absence of organic disease, in consequence of the want of physical signs, has led many of our brethren into disagreeable positions; and it must not be forgotten that in physical examinations negative results may furnish significant indications; indeed nothing should more awake our attention than the occurrence of important symptoms without there being signs to account for them. In the early stages of phthisis, the want of commensurate physical signs gives a fearful importance to the symptoms of cough, hemoptysis, pain, and irritative fever; in gangrene of the lung, the same deficiency of physical evidence indicates a case in which the fetid breath and putrid expectoration will probably be repeated, until at last an eschar is evident; and in suspected aneurism, the absence of all signs of tumour, especially when certain symptoms have been produced, will not justify our declaring the patient in an absolutely safe position."

These are sufficient proofs to show the guiding spirit of our author's mind; to show that he was disposed to look upon medical doctrine, when unsupported by the sure foundation of incontrovertible facts, with the greatest suspicion; and, in his practical appreciation of any given case, to be satisfied only with the evidence of its *entire* phenomena. Of the same school, the names of Graves, Marsh, Corrigan, Latham, and Todd, may be selected as familiar examples. But indeed it is almost invidious to particularize, when the majority of the leading lights of the present day inculcate the same liberal views.

Our readers may now understand the peculiar spirit which characterizes the volume before us,—a spirit which, when directed by experience, must always produce a valuable work. We shall therefore proceed to indicate the principal points discussed, in the order in which they are presented.

The First Chapter is occupied with the consideration of Pericarditis. Its forms, symptoms, and physical diagnosis, are fully given, and the modifications induced by co-existent disease and duration, together with the treatment. Among the complications we notice references to rheumatic fever, gout, phlebitis, typhus, dropsy, delirium tremens, and intermittents, besides the local diseases, pulmonic inflammation, hypertrophy, fatty degeneration, &c. In diagnosis allusion is made to the effect produced by increasing the pressure of the head on the ear-piece, which enables the observer to distinguish, in doubtful cases, the nature of the sounds,—a mode of proceeding which Dr. Sibson lately appropriated to himself. He

notices that, even in extensive pericarditic effusion, we may find friction-sounds at the base of the heart. The double jogging impulse laid down by Hope as a sign of pericardial adhesion he has never been able to verify, notwithstanding his numerous opportunities of observing pericarditic convalescents, in most of whom resolution by adhesion must have taken place. His experience on the Rheumatic complication gives us the conclusion, that the affection of the heart is more closely related to the rheumatic fever than to the inflammation of the joints, with which some observations of Latham would seem to coincide. As regards symptoms, neither their existence nor sequence can be considered constant. Objection is taken to Dr. Mayne's symptom of epigastric tenderness, which may arise from other causes. And his clinical experience of the pulse establishes that no special condition of it can be described as belonging to any one form or stage of the affection; an increased action of the cervical vessels is a symptom hitherto unnoticed in connexion with pericarditis, but in two cases in which he has observed it there was valvular murmur besides; so that the particular form of carditis is not indicated by this single symptom. Two cases are mentioned in which dysphagia was noticed; but this is a rare symptom, and not peculiar to cardiac disease. The sudden destruction of the eye, as described by Corvisart, he considers is more than doubtful as being dependent on any cardiac affection, for it it is also met with in phlebitic and other typhoid inflammations. Two cases are cited from Dr. Mayne's practice, and one from Dr. M'Dowel, in which friction-sounds were wholly absent. It is probable, however, that one at least of these had presented them in an early stage. In the differential diagnosis between endocardial and pericardial sounds, in addition to the well-known sign, viz., the change of situation of the former, the modification produced by the action of respiration is referred to as one of considerable value. Several instances are given of the diagnosis of pericarditis from physical signs alone. Among these is detailed the first in which our author ventured to make the the experiment. It occurred in 1830. And another is given as the first in which the positive diagnosis of an effusion of lymph on the surface of the pericardium was verified by dissection. In this case the heart was dislocated by an empyema, which, in the absence of all cardiac symptoms, might readily have engrossed the physician's attention, while the diagnosis was founded on the sudden appearance of fremitus, and a sound similar to the *bruit de rape*, in a chronic case, which, two days previously, presented no such signs. The latency of the peri-

carditis in these cases is to be explained by referring to the general law, that the pre-existence of an important local or general disease seems to act in preventing the development of symptoms in the new effects which may be superadded. Most important remarks as to the management of a case of pericarditis are given in the sequel of this chapter. The danger of carrying the antiphlogistic treatment too far is forcibly shown:

"In such cases the boldness of treatment often betrays the timidity of the practitioner: he is terrified at discovering the disease, and his mind is more occupied with its name, its nature, or actual condition. In this way great mischief is done, for the debility thus produced disposes the disease to change from the dry and comparatively innocuous form to an unhealthy inflammation, attended with liquid effusion."

Besides, it must be remembered that although blood-letting is better borne in pericarditis, in the early stage, than in pleurisy, yet the period when such treatment ceases to be advantageous is much shorter in the former than in the latter. And, further, that should such treatment be persisted in, paralysis of the heart may suddenly occur, and be fatal. This point is fully insisted on, and the imperative necessity of stimulants, at a certain period of the disease, explained.

"The following circumstances," he says, "should lead us to diagnosticate a weakened condition of the organ in pericarditis:—

"1. The feebleness, intermission, and irregularity of the pulse, especially when these characters have not existed from the commencement of the attack, and again when the feebleness of the pulse coincides with a diminution or loss of impulse.

"2. The appearance of turgescence of the jugular veins, with or without pulsation.

"3. The progressive change in the character of the sounds of the heart, more especially if it is the first sound that becomes feeble or extinct. This is important, for, if the second sound remains, we may conclude that the want of the first is owing to debility of the ventricles, rather than to any intervening liquid effusion.

"4. The evidences of a weakened circulation, drawn from the symptoms in general. Among these we enumerate pallor, coldness of the surface, œdema of the extremities, and the tendency to faint upon exertion, or even in a state of repose."

It is, therefore, necessary to examine the heart stethoscopically several times within the twenty-four hours, to observe the moment when weakened action commences. Prior to this he recommends relays of leeches, beginning with twenty or thirty, and gradually reducing the number on each application; and speedy mercurialization, by Graves' scruple doses of

calomel, once or twice daily. In the treatment of rheumatic pericarditis, if the disease be early discovered, the application of leeches may be alone necessary. Indeed, our author has seldom used even mercury in this complication, where the symptoms were mild or wanting and the pulse regular. In the early detection of this complication, notice is taken of the sudden appearance, and the previous and continued existence, of increased action in the heart; or, indeed, of any abnormal or unusual condition of that organ as quite sufficient to lead the practitioner to anticipate the lesion, though no murmur be heard, and act accordingly.

In an appendix, credit is given to Dr. Barlow and Dr. Chevers for adopting the author's views in reference to the production of atrophy of the heart by obliteration of the pericardium. In this section forty-seven illustrative cases are given, either succinctly or in a detailed form, and the opinions, views, and facts, upon certain points, of twenty-two authors.

The Second Chapter treats of valvular disease. The author here takes exception to the scholastic term "endocarditis," which sprung from the physiological school of Broussais, and which in the minds of many still calls up the idea of a pure inflammation. He is disposed to consider, for practical accuracy, chronic valvular disease as an "affection *sui generis*, into the treatment of which the question of existing inflammation does not necessarily enter." And he aptly remarks, that, so far from continuing to view a given case, even where the origin has been inflammatory, as one of chronic endocarditis, experience teaches us that "in many of such instances a tonic and stimulating treatment will be attended with much happier results than can be obtained by the antiphlogistic system."

It has often been asked, but never satisfactorily answered, —why it is that the valves are more prone to inflammation, and also to cartilaginous, osseous, and other transformations, than the membrane lining the cavities? Dr. Stokes takes up this question, but is content with throwing out suggestions rather than attempting a solution. Looking at the great frequency of the rheumatic origin of valvular disease, he asks— "Is this greater liability in any degree connected with the relation of the valves to the tendinous filaments of the papillary muscles, which may be supposed to be more implicated than the other internal structures of the heart?"

The prevailing opinion—that endocarditis is more frequently an isolated disease than pericarditis, which originated with Hope—is objected to by the author, whose large experience gives a very different conclusion. He endeavours to

account for the former view, by observing that pericarditis is frequent, in association with organic valvular murmur, in instances which are often set down as examples of endocarditis alone. Accordingly, he is inclined to consider the following as the order of frequency:—1st. Acute pericarditis, with endocarditis. 2. Simple pericarditis. 3. Simple endocarditis. As to the constancy of valvular murmur in endocarditis, he mentions the conditions in which the sound may be absent.

We have here a few paragraphs upon the causes of the cardiac sounds, in which a strong argument in favour of Williams' view is alluded to—"This at least is certain, that where the muscular contractility of the heart is impaired, it is the *first* sound that suffers most diminution;" at the same time it must be remembered that the auriculo-ventricular valves may, under such circumstances, produce less sound, should their closure be attended with any.

Speaking of the difficulties of the diagnosis of valvular disease, which the varying opinions of medical writers have by no means tended to lessen, the author has looked merely to those grand points which have been undoubtedly established; and has thus rendered what is known more simple and practically applicable.

"It too often happens," he truly says, "when the existence of a valvular disease is determined, that great labour is expended in ascertaining the exact seat and nature of the affection. Long and careful examinations are made, to determine whether the disease exists at the right or left side of the heart; whether it be a lesion of the mitral, tricuspid, or the semilunar valves; a contraction or dilatation; an ossification; a permanent patency, or warty excrescence. Now, though in some, we might say in many cases, these questions may be resolved with considerable accuracy, it is also true that in a large number their determination is of a comparatively trifling importance; and the two great practical points to be attended to are, first, whether the murmurs really proceed from an organic cause, and next, what is the vital and physical condition of the muscular portions of the heart; for it is upon these points that prognosis and treatment must entirely depend."

And again,—

"Another source of the difficulties with which this subject is surrounded is, that rules of diagnosis are in many cases founded on the supposition of the isolation of disease; but every practical man knows that in chronic diseases of the heart isolation is the exception, and complication the rule. Hence, one reason why disease at the bed-side so rarely corresponds with its description in books. Its combinations vary infinitely in their nature and number; and we

often find, particularly in cardiac disease, that it is the more recent and least developed affection that produces the most prominent physical signs. Hence, in many cases, while we recognise a particular disease, we are unable to say whether another and even more important affection coexists."

Not that he undervalues the differential diagnosis of endocardial disease, especially as regards the prognosis; but, confirming the observation made by Laennec, "that valvular diseases had but little influence on health when the muscular condition of the heart remained sound," he thus simply lays down the broad principle of action which the case demands:—

"The practical physician, having satisfied himself that a valvular disease exists, will not devote too much time in ascertaining its exact nature; but he will examine into the vital and mechanical state of the heart's cavities. He will ascertain the amount of vigour of the heart, whether its force is above or below the natural standard; whether it is liable to excitement from slight causes; and whether irregularity of action or the opposite is its ordinary state. He will endeavour to determine the duration of the disease and its origin, and examine how far the brain, lungs, or liver, have suffered from the mechanical or vital effects of diseases of the heart. Thus he will obtain some rule of treatment, and as the two most common diseases of the orifices, viz., permanent patency of the aortic and mitral valves, when occurring in an isolated form, are not difficult to distinguish, he will, so far as treatment and prognosis are concerned, be able to give to the patient all the advantages which the present state of medicine can afford."

The following forms of valvular disease, he considers, may be generally diagnosed with certainty, and, what is of more value, with practical utility:—

"1. Uncomplicated mitral disease.
"2. Corrigan's disease of the aortic valves.
"3. Disease of these valves, without permanent patency.
"4. Extreme ossific disease of the aortic orifice."

There are, doubtless, many stethoscopists who would confidently declare, that a much longer catalogue might be fairly considered as accessible to the accomplished diagnostician; and, perhaps, were occasional exceptions allowed to constitute a rule, the list might be much extended; but, unfortunately, every clinical observer must admit, with Dr. Stokes, that many a time when it is asked, can we say whether the disease of the mitral valve is a narrowing or a dilatation, an ossification, or a merely cartilaginous thickening,—we must answer in the nega-

tive; and, if we are asked further, is the disease confined to a single valve, we can in many cases give but a doubtful reply.

In connexion with this the author dwells with much force and perspicuity upon the importance of an observation due to Laennec,—an observation which presents a clue to proper treatment under the circumstances, otherwise difficult of solution,—viz., that valvular disease is often only discoverable by physical examination, and that its physical signs may be only developed after a considerable period has elapsed. Thus may the manifestation of an extremely slow and long-existing affection be suddenly presented to the practitioner, who may very readily commit the important error of considering the really ancient disease as one of recent origin.

The following paragraph places this point in a novel and striking point of view:—

"The recent development of the signs of a chronic, long-pre-existing disease is a circumstance which should be known to all who are concerned in the medical examinations for life insurance. Thus, it may happen, a life is passed as insurable after a careful examination. The insurance is effected, and yet in a short time the individual exhibits all those signs of morbus cordis which are supposed to indicate chronic disease. He may die of this disease within a few months after the completion of the insurance, and the payment of the sum insured be then contested, on the ground that the disease was overlooked. I have known all the signs and symptoms of permanent patency of the aortic valves to occur within a few months after the effectuation of a large insurance, and yet at the period of the medical examination, which was made by one of the best observers in this or any other country, no sign of disease of the heart existed. In the same way I have known the signs of chronic mitral disease become most strongly developed in the course of a few days. These facts are of practical importance, for in the case of a judicial trial, on the ground of the incompetency or neglect of the medical examiner, many professional witnesses would incline to the opinion that the affection had been overlooked rather than that it had become developed in so short a time after the examination. They would be influenced by the opinion that the development of disease and of its symptoms and signs are concurrent, a doctrine which we have seen to be untenable in acute, and, of course, far more so in chronic disease."

Several well drawn-up cases are given as illustrations of the prolonged existence of cardiac disease, and of its sudden development, by the disturbing influence of intercurrent irritation upon the heart's action.

The morbid anatomy of the valves gives rise to a practical

discussion of great importance. Admitting that the morbid changes commonly observed may be due originally to inflammation, it does not follow that the inflammatory condition shall persist; on the contrary, the author is persuaded that, after a time, these alterations "continue under the influence of processes very different from that of inflammation." The clinical history of cardiac cases puts it indeed beyond doubt, that in many cases a time does arrive when "the diseased action is really arrested, and the lesion becomes stationary." The practical points, therefore, which these considerations will suggest to the attentive observer of a case of valvular disease will be, in the words of the author:—

"1. To determine whether there is much obstruction to the current of blood. 2. Whether the permanent action of the heart is augmented or depressed. 3. Whether actual enlargement of the cavities of the organ has taken place. 4. Whether the action of the heart is regular or the contrary. 5. To ascertain as nearly as possible the duration of the disease, for it is on these points that his treatment must turn, and his prognosis to a great degree be founded."

At page 163 it is stated that "diseases of the valves of the pulmonary artery and of the tricuspid valves are rare, as compared with the analogous affections of the left side of the heart. So great is this difference in frequency, that in practical medicine we may confine ourselves to the diseases of the mitral and the aortic valves." So satisfied is Dr. Stokes of the correctness of this conclusion, that he throws a doubt upon the observations of Hope and Walshe as regards the diagnosis of patency of the pulmonary valves—and indeed seems to consider that we need not concern ourselves much with the means of discovering the lesion. No reference is here made to the observation of Dr. Blakiston, of Birmingham, upon tricuspid regurgitation. This writer observes, contrary to the generally received opinion, that these valves are as liable to disease as the others; but he adds, "the disease in the mitral orifice is generally palpable, while that of the tricuspid valves may very often escape the eye of a superficial observer; and yet the shortening of the cords of the latter, so easily overlooked, would probably have a much more serious effect on the circulation than an obvious thickening and narrowing of the mitral orifice or a deposition of vegetations on its valves." This lesion accompanies dilatation, and is, he believes, the main cause of general obstruction, in opposition to the views of Hope and Andral. Without going the length of a complete concurrence in the

opinion of Dr. Blakiston, we are inclined to believe that the lesion mentioned is much more common than what Dr. Stokes is disposed to admit; and indeed, when speaking of dilatation of the right cavities and venous pulsation, he does allude to a coexistent enlargement of the tricuspid orifice.

An important section in this chapter is occupied with the symptoms and the physical signs of mitral disease. With respect to the former, the author considers none *proper* to the simple disease; while, in some cases, all may be absent. The cardiac pain, too, which systematic writers always mention, he is disposed to consider to be due rather to parietal alterations than valvular disease, and hence it is frequently absent; and, with regard to the physical signs, an important caution is mentioned, which, as coming from so accomplished a stethoscopist, should possess much weight:—

"We read," he says, "that a murmur with the first sound, under certain circumstances, indicates lesion of the mitral valves. And again, that a murmur with the second sound has this or that value. All this may be very true, but is it always easy to determine which of the sounds is the first, and which the second? Every candid observer must answer this question in the negative. In certain cases of weakened hearts acting rapidly and irregularly, it is often scarcely possible to determine the point. Again, even where the pulsations of the heart are not much increased in rapidity, it sometimes, when a loud murmur exists, becomes difficult to say with which sound the murmur is associated. The murmur may mask not only the sound with which it is properly synchronous, but also that with which it has no connexion; so that in some cases even of regularly acting hearts, with a distinct systolic impulse, and the back stroke of the second sound, nothing is to be heard but one loud murmur."

And again:—

"To the inexperienced, the detailed descriptions of such phenomena as the intensification of the sounds of the pulmonary valves, of constrictive murmurs as distinguished from non-constrictive, of associations of different murmurs at the opposite sides of the heart; of pre-systolic and post-systolic, pre-diastolic and post-diastolic murmurs, act injuriously; first, by conveying the idea that the separate existence of these phenomena is certain, and that their diagnostic value is established; and secondly, by diverting attention from the great object, which—it cannot be too often repeated—is to ascertain if the murmur proceeds from an organic cause; and again, to determine the vital and physical state of the cavities of the heart."

And upon the diagnostic question, when two valves are

supposed to be diseased, the following valuable reflection is made:—

"The experience of each succeeding day devoted to the study of diseases of the heart will make us less and less confident in pronouncing as to the absence of disease in any one orifice, although no physical sign of such a lesion exist, if there be manifest disease in another, or again, if there be symptoms of an organic affection of the heart."

The researches of Dr. Adams, to whom Dr. Stokes pays a high tribute, on mitral contraction are endorsed *in extenso.* One remarkable symptom, pulsation of the jugular veins, which Lancisi deemed indicative of dilatation of the right ventricle, gives occasion to the author to consider the views of Hunter, Mr. J. W. King, and Dr. Benson. While admitting in certain cases a venous pulsation, propagated solely from the arteries, it appears certain to our author that the venous pulse is more frequently the result of regurgitation from the right ventricle.

In reference to the disease of the aortic valves, the elaborate and accurate observations of Dr. Corrigan are largely referred to; and a point of treatment of the greatest importance, to which he refers, is forcibly insisted on.

"A diminished vital energy in this disease is shown, not only, as Dr. Corrigan has remarked, in the want of proportion between the impulse of the heart and the amount of hypertrophy of the left ventricle,—as well as in the injury done by an antiphlogistic treatment,—but also in the character of the local inflammations of other organs than the heart, to which the patients are liable. I have generally found that such inflammations were of a low kind; that they resisted ordinary treatment; that when, for example, pneumonia set in, which is not uncommon, it had a spreading, somewhat erysipelatous character, resisting local treatment, and not benefited by tartar emetic or mercury, especially the first. It is a common error for practitioners, when called to a case of acute bronchitis or pneumonia supervening on this condition of the heart, to overlook this peculiarity of constitution, and they are too often surprised at the rapid sinking of the patient, who, but a few days before, appeared to be in a safe position."

In connexion with this disease, its simulation of aneurism —also noticed by Dr. Corrigan—is fully considered, and its importance distinctly shown. Dr. Stokes has known this disease to be mistaken for aneurism of the abdominal as well as the thoracic aorta. The means of diagnosis between these resembling diseases are succinctly detailed at the conclusion of this chapter. The views of Forget upon the law of retro-dilata-

tion, and those of Skoda upon the mechanism of the cardiac sounds, are given at great length. In the former case, the opinion that the law referred to furnishes important diagnostic marks, cannot be subscribed to in consequence of its repeated failure, and, at best, yields but a corroborative evidence, which was previously established by Drs. Adams and Corrigan.

The researches of Skoda on auscultation are no longer novel: but we may remark that the translation of them, for which the author states that he is indebted to Dr. W. D. Moore of this city, exhibits an admirable appreciation of Skoda's difficult style.

The morbid anatomy of myocarditis is confessedly meagre. Of this lesion, independent of inflammation of the serous membranes, little or nothing, according to our author, is known. The fact of paralysis of the muscular fibre preceding its disorganization, is noticed as a reason for the limited knowledge we possess. Hasse's view is mentioned, which makes a coincidence of endo- peri- and myo-carditis, a more common form than isolation of the last. Of the earlier stages, represented by injection of the cellular structures, serous and sero-sanguinolent infiltration, lardaceous transformation, and diminished consistence, we know little save from the writings of Hasse and Gluge; while the more advanced forms, as interstitial suppuration, abscess, and superficial ulcerations, have been familiar to most pathologists. Besides these, Dr. Stokes notices rupture of the valves, cardiac polypi, purulent cysts, and partial aneurism of the ventricles, so well described long ago by Craigie.

An interesting observation of Hasse is slightly alluded to viz., the fact of the tearing of diseased semilunar valves into shreds and filaments, which, covered with little wedge-shaped pellets of coagulum and effused matter, are floated in the arterial tube, in the direction of the current of blood. This accident has recently acquired much interest, in consequence of its greater frequency of detection, and its influence in producing gangrene in the sequel of carditic cases: which result, supervening upon the sudden cessation of the pulse in an extremity, might be sufficient to warrant a diagnosis.

The Third, Fourth, and Fifth Chapters are occupied with the consideration of diseases of the muscular structures of the heart, independent of inflammatory origin. As preliminary information, the conclusions given in Bizot's memoir on the dimensions of the heart and its different portions, are fully detailed, with a view of settling the difficult point as to the ex-

istence or non-existence of dilatation or hypertrophy in any given case on dissection.

The author's experience as to simple dilatation is, that though a murmur is rare, it may coexist, but is not to be always attributed, as Dr. Walshe believes, to coexistent enlargement of the orifice. No decided explanation is advanced, however, as to its real cause. We have more than once observed this condition in great dilatation without valvular disease. In connexion with this subject of dilated heart, the highly interesting case of the late Abraham Colles is fully detailed. When dilatation coexists with hypertrophy, besides increase of dulness, Dr. Stokes lays great stress upon observing "extension of the area of impulse," as one of the best-marked signs. Nevertheless, cases will occur in which the physical signs do not fully correspond to the actual state of the organ; thus, says he,—

"It is often found that a greatly enlarged heart may exist without much augmentation of sound or of impulse. The organ does not contract with vivacity; and hence, though by the hand placed over the præcordial region we recognise a deep and extended pulsation, we find this pulsation feeble and wanting in localization. It is not uncommon on dissection to find the heart much more enlarged than could have been expected from the sounds, impulse, or pulse, as observed even for a considerable time before death."

Of course, in many cases where this difficulty is found, it may be accounted for by the existence of nervous debility, fatty degeneration, or simple unwieldiness, preventing full contractile power. But these explanations often come late for practical purposes.

Speaking of dilatation of the auricles, a very interesting suggestion is advanced, based upon the examination of a case of cardiac disease with general venous obstruction, in which there was considerable dulness, unexplained by any disease of the lung or pleura, with a most distinct diastolic pulsation. Aneurism was at first thought of, but afterwards abandoned. On examination, the right auricle resembled to the eye a vast purple tumour, which concealed the whole of the anterior portion of the right lung, and contained more than a pound of blood. In fact, as it is stated, the auricle had become an aneurism, so far as its mechanical relations were concerned. Reasoning from the circumstances of this case, as is the author's characteristic habit, he inquires, may not such a condition be possible in the ventricles? "I apprehend," says he,

"That such an action takes place in certain cases of fatty degeneration with dilatation of the left ventricle, for I have observed instances of this disease wherein the systolic sound was extremely feeble, yet in which the impulse was diffused and clearly diastolic, having a close resemblance to that produced in a true aneurism of the ascending aorta. The character of this impulse was altogether different from that produced by contraction of the ventricle. It was excentric, and its great dissimilarity to the ordinary impulse in fatty hearts tends to confirm the idea that it was produced in the ventricle by the systole of the auricle."

This is an average example of the manner in which he *reflects* in the examination of the details of an interesting case, and from the striking instances Dr. Stokes has given of the most important principles of diagnosis, pathology, and treatment, which have been solely and originally due to the suggestions made upon isolated cases, there cannot be a question as to the value and importance of mere observation, when carefully conducted, in promoting the science of medicine.

In connexion with the subject of dilatation, we observe that the opinion of Laennec on *clearness* of the sounds as a distinctive sign, is very much curtailed of its supposed value.

Several interesting cases, with explanations and reflections, are adduced upon the subject of enlargement of the thyroid gland and eye-balls supervening upon diseased heart. In one case, the condition of the gland was mistaken for aneurism, and a day appointed for applying a ligature to the carotid. Its diagnosis, as distinguished from bronchocele, is given, and reference made to Graves' account, published in 1835, in which, among other reflections, it is suggested that the thyroid body may be somewhat analogous to erectile tissues, and that the *globus hystericus* may occasionally arise from a temporary enlargement of this gland.

The enlargement of the eyeballs, which usually succeeds the violent cervical pulsations and thyroid tumour, is considered to arise from an augmentation of the optic humours. The following description of this interesting affection is so graphic, that those who have once observed the phenomena will immediately recognise it as a true picture:—

"Both eyeballs are simultaneously and equally affected, and, so far from signs of sanguineous congestion existing, the eye has a singularly clear and transparent appearance, which in some cases amounts to a morbid brilliancy. There is a peculiar staring expression caused not only by the prominence of the ball, but from the line of the sclerotic coat which is seen surrounding the cornea to a

greater or less extent. Under these circumstances a maniacal expression is produced. As the disease advances, the protuberance of the globe may become extraordinary. It protrudes outwards and downwards, and the lids being no longer able to cover the eye, the patient sleeps with the eyes open; yet it is a most singular fact that the power of vision is not in any way injured, nor is the patient rendered liable to ophthalmia. I have known a case in which, for upwards of a year, the eye was never closed, yet in which no vascularity of the conjunctiva, nor any form of ophthalmia, ever occurred.

"When emaciation takes place, the expression of the countenance produced by this staring, protuberant, and never-closing eye, is most painful and extraordinary. Yet so far as the eyes are concerned, the patients make little or no complaint. What they principally suffer from is the palpitation of the heart, the throbbing in the neck, and the sensation of fulness in the head and constriction when the head is bent forward so as to compress the thyroid tumour.

"In most instances we observe a want of proportion between the force of the pulsations in the arteries of the neck and those in other parts of the system. The carotid and thyroid arteries may pulsate with vehemence, so as to give the idea that all the vessels of the neck are enlarged and in a state of morbid activity, yet the radial pulse be small and weak, and only rapid or irregular according to the state of the heart's action."

As to the connexion between the peculiar conditions above referred to, and cardiac disease, the author candidly confesses an insufficiency of data necessary to establish a clear decision. He is disposed to consider them as originally functional; and he is led to this conclusion from a careful consideration of the cases he has met with, which prove that the confirmed disease may be resolved, and that the combination with hypertrophy of the heart—a condition apparently most favourable for producing the disease in question, is rarely seen; nevertheless, though its essence and origin may be functional, organic change may follow.

On the subject of atrophy and weakness of the heart, reference is again made to the advanced stage of pericarditis, which presents a condition of great practical importance, and the proclivity to which demands from the practitioner the earliest attention.

Chapter v. contains a most instructive article, and indeed a tolerably complete monograph upon the practical points of "fatty degeneration of the heart." Seventeen illustrative cases are cited, either in abstract or detail. As to the nature of the two forms of this affection described by Laennec, the author is apprehensive that no strong line of demarcation can be made.

In a clinical point of view, however, two distinct classes of cases are admitted; viz., in the one the alteration is found in various degrees of development, although other organs than the heart have been prominently affected,—this is the complex case; while in the other the heart affection seems the principal lesion, and the general health continues good. Prior to Laennec's time, little was known about this disease; and since, especially in the first class of cases, notwithstanding the able researches of Paget, Quain, Hasse and others, it has been frequently overlooked amidst the accompanying more manifest lesions. Dr. Ormerod, whose microscopic examinations are cited, has clearly proved that this disease accompanies many and various maladies, and that in the dissection of the subjects of chronic diseases generally, it behoves the pathologist to ascertain, by the aid of the microscope, the actual condition of the muscle ere he decides as to the non-existence of the lesion.

"He must bear in mind that in many chronic cases, even although there be no symptom or well-marked sign to draw attention to the heart, yet that it may be more or less affected with this disease; and that, although the circulation appears to be carried on with a fair amount of strength, yet that the muscular fibres of the heart may be atrophied, and under these circumstances liable to a sudden failure of action."

The diagnosis of this condition in matured cases is possible, and the indications are given; but many instances occur in which it can only be suspected, or cannot be distinguished from a weak and dilated condition of the organ. Besides the physical signs of a debilitated heart, much importance is given to the symptoms referrible to the nervous and respiratory systems. The pseudo-apoplectic seizures, and their frequent repetition, characterize the former, while a peculiar *sighing respiration* distinguishes the latter. This latter sign "consists in the occurrence of a series of inspirations increasing to a maximum, and then declining in force and length, until a state of apparent apnœa is established. In this condition the patient may remain for such a length of time that his attendant may believe he is dead, when a low inspiration, followed by one more decided, marks the commencement of a new ascending, and then descending, series of inspirations." Dr. Stokes considers this symptom almost pathognomonic of "a weak, and, in all probability, a fatty heart." The pulse, too, presents some peculiarities. It may be accelerated, and occasionally intermitting, extremely feeble, irregular, and tingling, or permanently slow,—the last character implying an advanced stage, the former an

earlier or partial affection. When in combination with lesion of the aortic valves, the diagnosis is rendered much easier; the first sound being replaced by a prolonged murmur, loudest at the base, and extending along the aorta; the second sound is unaffected, and these signs are associated with the indications of a profoundly weakened ventricle.

In the Appendix to this chapter a remarkable observation made by Professor Smith, on the production of air in the heart and vessels prior to the commencement of putrefaction, is noticed, and the cause of this phenomenon is ascribed to the oily state of the blood, first recognised by this eminent pathologist.

Chapter VI. gives us a view of the author's treatment of the organic diseases of the heart, a subject which is characterized, not by novelty, or variety of the remedies recommended, but rather by simplicity and decision in the handling of the chief means already known. He discusses with great clearness and force the important practical questions,—When should we stimulate? when should we deplete? when should we salivate? &c. He thinks the usual practice of systematic writers too rigidly adapted to the assumption of the isolation of diseased conditions:—

"This mode of studying the subject," he says, "overlooks the great fact, that in many of these cases changes not only in the mechanical but the vital state of the organ, are continually going on; and that, even with the existence of organic disease, the state of the blood has a great influence on the physical signs, and also on the results of treatment. Nor is it to be forgotten that the most prominent of these signs do not always belong to the original and more important disease, which lies, as it were, hidden by the effects of the disturbance which it has itself excited."

Nevertheless he adds,—

"A time may come when the science of diagnosis will be carried to such perfection that we shall unfailingly determine not only the condition of each portion of the heart, but discover the rise and watch the progress of every interstitial change in its structure, and every mutation of its vitality."

In hypertrophy repeated leeching is recommended in preference to any other form of depletion. Digitalis, or hydrocyanic acid, anodyne applications, and small blisters, are the other means to be used in the simple form; but it must not be forgotten—and on this point he lays particular stress—that there may be present what the author calls a *passive hypertrophy*, a state for which stimulants are absolutely necessary, and which is most frequently met with in combination with permanently

patent aortic valves. And the necessity for more than ordinary caution, in pushing what might seem a rational treatment, will be appreciated, when it is taken into account, on the authority of such acute observers as Dr. Latham and the author, that the perfect curability of confirmed hypertrophy is simply impossible. The evil result of a lowering treatment in the combination referred to was long ago fully explained in Dr. Corrigan's original memoir, which is largely cited by the author, and to which we have specially pointed attention in the fifteenth volume of our present series[a].

The consequences of the *dilated heart*, which include pulmonary and hepatic complication, are shown to yield very generally to a mercurial course, which, though it may not cure, will decidedly relieve for the time; and, as in the case of the late Mr. Colles, be the means of prolonging life.

The debilitated heart arising from fatty degeneration can rarely be remedied in the maturer form; but, if the case be detected early, by plainness of living, nourishing but non-oleaginous diet, and an appropriate tonic (as iron), with attention to the state of the bowels, it is the opinion of the author that even a long life may be attained, and a good general health maintained. The indications for the continuance, diminution, or increase of stimulants, are specifically mentioned, and the gouty and cerebral complications fully explained, and their efficient management distinctly pointed out.

There is nothing peculiar, it will be seen, in the weapons Dr. Stokes here places in the hands of the practitioner; but the *when*, and the *how*,—those all-important *arcana*, which a life-time of ordinary practice is necessary to establish, are given with a master pen.

The condition *of the heart in typhus fever* Dr. Stokes has made a subject peculiarly his own. His original observations on this subject were mostly made in the years 1837–38, and must be familiar to our readers. Additional observations of great value are here given, especially the development of murmur of the heart in the course of *the short relapsing fever*, which was so prevalent in the epidemic of 1847. Softening of the heart did not usually attend this condition, and the bellows murmur, or a prolongation of the systolic sound, was common, especially in the relapse, independently of carditis. The author notices the difficulty to which this new phenomenon might occasionally lead, and relates a case (LXIII.) in which the valves were really diseased; while many who saw the patient came

[a] Pages 409 and 410.

to the conclusion that the murmur was not organic. A few cases of maculated fever are also given in which a systolic murmur was heard.

The application of these cardiac phenomena to the treatment of fever are most important. An additional clue has been thereby afforded to enable the practitioner to discover the earliest moment when stimulants become necessary; and further, in the course of treatment, to offer a more decided prognosis. It is not alone, however, in cases of fever, that the application referred to may be of service, but in a large number of typhoid and asthenic conditions of the system, it is often of the utmost importance to understand accurately the coexisting force of the heart, in reference especially to the use of opium and stimulants.

Some interesting observations are presented in the eighth chapter, upon displacement of the heart, which, though not a disease, is a most important element in thoracic diagnosis. Attention is directed to its significance, as *one of the very first signs* of pleuritic effusion, and a reference given to Professor Smith's unique case of cardiac dislocation from pneumonic tumefaction. These forms the author is disposed to call *excentric* displacements, as also that due to emphysema, in contradistinction to those dependent on the diminished volume of lung, to which he gives the appellation of *concentric.*

Rupture of the heart, which gives scope for much pathological research, but without corresponding practical utility, occupies the ninth chapter.

The tenth chapter discusses a much more important theme, viz., *Deranged action of the heart*, in which angina pectoris, in connexion with the observations of Heberden, Parry, and Latham, neuralgia, the various forms of nervous palpitation, inorganic murmurs, the clinical value of fremitus, with rheumatic and gouty disturbances, are all clearly illustrated. The author is not so sanguine as some contemporary writers on cardiac pathology, as to the facility of making a correct diagnosis between functional and organic diseases. The opinions of Hope and Walshe with regard to the invariableness of the *site* of a functional murmur, for example, is objected to,—

"For I cannot help believing," says he, "that I have observed cases of inorganic murmurs which, so far as physical signs went, were closely similar to those of ordinary mitral disease with regurgitation into the auricle. And it must be borne in mind, that we are under difficulties in determining that a murmur is only produced at the base of the heart when the concomitant signs and symptoms which attend disease in that situation are wanting.

Again, cases may be met with in which the action of the heart is so tumultuous and irregular as to make the determination of the seat of murmur practically impossible."

A more important point of distinction is the absence of murmur in the second sound in the anemic or nervous cases. Even this, however, will not much assist us in what occasionally happens, a combination of organic and inorganic murmurs. Indeed—

"Cases of this sort are more frequent than is imagined; and their diagnosis, even to the best-informed physician, is full of difficulty. Let us suppose a case of regurgitant disease of the mitral opening, with its proper sound, in which anemic murmur exists at the orifice of the aorta,—one of these murmurs may be louder than the other; one or both may be musical; both are systolic; and fremitus may or may not be present:—he would be a bold and a badly-informed physician who, on a first examination, would declare positively in which orifice the disease was seated, or indeed, whether organic disease existed at all. Doubtless, the advance of diagnosis will diminish these difficulties, but it is most desirable that the younger practitioner should not enter on his profession believing that as he runs, so he may read the varied signs of cardiac disease."

The author questions some of Walshe's observations on the *reduplication* of the cardiac sounds, which the latter deems of comparatively little moment. In the case of rheumatic fever, for example, Dr. Stokes is disposed to believe that it indicates a proclivity to carditis, if not the disease itself.

The two last Chapters are concerned with the diagnosis and treatment of *Aneurism of the Aorta.* They will well repay perusal, as the entire subject is most carefully and elaborately worked out. The views of all the chief writers thereon are fully noticed; and the principles which approximate to "unequivocal criteria,"—a phrase of Hope's, which in its fullest sense he cannot admit,—are cautiously advanced.

The character of the sounds and impulse, the sources of thoracic pulsation, the symptoms of pain and compression, and the method of clinical examination, are all well illustrated. With regard to the existence of pain, it is an indication exceedingly irregular in every respect, and it is seldom, according to the author, that a correct interpretation can be given therefrom,—"We may often diagnosticate an abdominal aneurism from the character of the pain, but this is seldom the case when the tumour is situated above the diaphragm;" and yet, in abdominal aneurism, we may have erosion of the vertebræ without pain, and pain without any injury of the spine; and with regard to the symp-

toms of dysphagia and dyspnœa, and cough, these may be all absent, as well as all physical signs prior to the manifestation of the tumour. The association of aneurism with tuberculosis is noticed by Dr. Stokes as being comparatively frequent, which is certainly not what we should have expected. He admits, indeed, that any complications are limited: but, notwithstanding, so convinced is he of the frequency of this particular combination, that he has "often thought that there was a case deserving the name of consumptive or *strumous aneurism*, in which the same general morbid state which caused deposition of tubercle in the lung simultaneously affected the coats of the aorta." We observe no mention of this even in the most recent authors on tubercular disease. In the treatment, Valsalva's, and indeed all extensive depletion, are strongly condemned. Occasional leeching is, however, often of service; and a diet, nutritious and even generous, including a certain quantity of wine or other stimulant, will be most suitable as a general rule. The following extract is terse and to the point:—

"If, in a case of false aneurism of the aorta, there was no lesion, beyond a solitary perforation of the inner coats of the vessel,—if in true aneurism there were no morbid deposits, and the disease was nothing but a simple dilatation,—if there existed no such condition as the atheromatous diathesis, if the facility of coagulation of blood was inversely as its quantity of fibrine,—and lastly, if the anemic state produced tranquillity of circulation, then, indeed, might we expect good from a mode of treatment which, not content with removing the blood already existing, retards the formation of new blood, and thus depletes the system at both ends. Fortunately, however, for many of the subjects of this treatment, it is often but imperfectly carried out."

Dr. Stokes here brings his labours to a close with the history of abdominal aneurism, which is carefully and elaborately detailed; and perhaps in no other part of the work before us do we meet with more graphic and interesting writing.

Our readers will now readily perceive, from the analysis we have given, the general bearing and scope of the volume. We have glanced at but a selection from the many valuable hints, suggestions, and practical points with which its pages teem; and though we cannot but have noticed that much of the material has been already before the profession in other forms, yet so much has been added in the shape of emendation and original research, that we cannot consider this as a defect,—on the contrary, it may be fairly deemed as calculated to impart to the work a higher value, seeing that we are now presented with the results of experience tested by the touchstone of time.

This book will, of course, be extensively read. Every one who has studied the author's previous works will be, doubtless, anxious to see his latest production, and we can very well anticipate some important changes in the cultivation of the practice of medicine, which must result from such a general perusal. We can see plainly, that a closer, profounder, and more reflective study from clinical observation, than has hitherto been pursued, will be followed by "young medicine" of the present day,—that dogmatism will go down,—and that a buoyant spirit of eclectic inquiry, and an independent ratiocination upon the basis of *nature alone*, will take its place.

We believe, further, that the erroneous idea of a local morbid entity, as distinguished from that comprehensive view of the human economy which considers pathology, wherever manifested, as more or less of a general affection, must give way before the enlarged and liberal spirit which originates such a conception of disease as we find portrayed in this volume: and we feel well convinced that Dr. Stokes has laid down such an enlightened treatment of cardiac maladies as must to a very great extent revolutionize the authoritative and too general routine, which we fear still frequently characterizes the cardiac practice of the physician.

We cannot close our notice of this admirable volume without alluding to a feature of peculiar value, which every reader will appreciate—we mean the copious Index, and the excellent Epitome of the Cases detailed. We have to congratulate Dr. Moore, of this city, who undertook this particular task, on the ability which he has exhibited in providing this most convenient reference, the general want of which in works which are frequently consulted (as this volume will undoubtedly be) has been so often experienced.

The Elements of Materia Medica and Therapeutics. By J. Pereira, M. D., F. R. S, &c. Third Edition, enlarged and improved; including Notices of most of the Medicinal Substances in use in the civilized world, and forming an Encyclopædia of Materia Medica. Vol. II. Part 2. Edited by Alfred S. Taylor, M. D., &c., and George Owen Rees, M. D., &c., from the Notes and Memoranda of the late Dr. Pereira. London: Longmans, 1853. 8vo, pp. 1539 to 2316.

The death of Jonathan Pereira, in the prime of life and mental vigour, has left a great blank in the important department of medical science he so specially made his own. Endowed with

rare powers of generalization, and possessing indomitable industry, he rigorously investigated the entire of the Materia Medica. Examining, inquiring, sifting evidence, searching for information wherever it was to be obtained, referring to original authorities, and carefully reading and selecting from what had been written on the subject of his favourite study, he has bequeathed to medicine a great name founded on a great book. Pereira died at the comparatively early age of 49, while labouring to complete the concluding volume of his work, now before us,—the immediate cause of his death being ascribable to an accident received while engaged in the examination of a specimen with this object:—

"It was during a visit to the Museum of the College of Surgeons," write the editors of this volume, in a note at p. 2231, "for the purpose of examining the preparation to which the preceding plate [of Para isinglass] refers, that the late Dr. Pereira met with the serious accident which confined him to his bed, and from which he was just recovering when he was suddenly seized with fatal illness. The above was written while he was confined to his bed, and it was one of the last articles from his pen."

It was, then, with a mingled feeling of grief for his loss, and gratification that the greater part of his Cyclopædia of Materia Medica had received careful emendation and many valuable additions from his own hand, we received this concluding volume. Dr. Alfred S. Taylor, the eminent chemist and toxicologist, and Dr. G. O. Rees, were selected to edit the concluding portions which Pereira was not spared to complete,—the article "Cinchona," we are informed, being "the last which passed under the hand of the author." From page 1682 to page 2285 of this edition is therefore the portion revised by the editors, and we must honestly state our expression of regret that the task they undertook has not been at all satisfactorily performed,—but little pains being bestowed in adapting to it the alterations consequent on the publication of the new editions of the London and Dublin Pharmacopœias. In proof of this we could cite many examples we have met with in our constant reference to a book which should be in the library and on the table of every practitioner. The following are but a few:—In the last edition of the London Pharmacopœia the density of Creasote is given as 1046, not 1037 (page 2011); in the same, Buchu is stated to be the leaf of Barosma serratifolia, B. crenulata, and B. crenata, not of *various species* of Barosma (page 1910); the form for Syrupus Althææ is altogether wrong (page 2047); the statement that the London College adopts

the opinion, that balsam of Tolu and balsam of Peru are both yielded by the *same tree*, is left unaltered (page 1829); and the reference of the Dublin Pharmacopœia, of 1826, of the same substance to Toluifera balsamum, instead of Myrospermum toluiferum in that of 1850, is retained; at page 2144 the characteristics of acetate of morphia in the London Pharmacopœia of 1836, and not those in the last edition, are given: the great difference in the strength of the *solution* of this salt in the London and Dublin Pharmacopœias is not noticed; the syrups of morphia of the last edition of the Dublin Pharmacopœia are not mentioned; the syrup of citric acid and the effervescing citrated powders of the same Pharmacopœia are likewise passed over; Pyroxylic spirit shares the same fate, and its medical uses are not noticed at all; and at page 1979, in the London process for chloroform, *aquæ quadruplum* is translated "a quarter of the water."

But we have cited enough examples to show that, to say the least, the editing exhibits marks of haste. Nevertheless we have several valuable additions, which can be easily traced to Dr. Taylor's pen, scattered throughout the volume; and we should not have noticed the above blemishes, evidently the result of carelessness, were it not that, understanding a new edition of the entire work will ere long be published, we are anxious to impress on whatever editor, it may fall into the hands of, the minute attention and care which will be required from him in its revision.

Anteckningar om de förnämsta Medicinska Skolorna uti Italien, Frankrike, Holland och England. Af Prof. C. Santesson. Hygiea, April, May, June, and July, 1853. Stockholm: C. E. Fritze.

Sketches of the Principal Medical Schools in Italy, France, Holland, and England. By Professor Carl Santesson.

Gli Spedali e gli Ospizi di Parigi e di Londra, visitati nella primavera dell' anno 1852. Dal Dott. Pasquale Landi, di Cinigiano (con figure intercalate nel testo). Firenze, Tipografia di Mariano Cecchi. 1853. 8vo, pp. 349.

The Hospitals, Lunatic Asylums, and Charitable Institutions of Paris and of London, visited in the Spring of the year 1852. By Dr. Pasquale Landi, of Cinigiano (with woodcuts interspersed through the text). Florence.

We were once told by a Swedish visitant of our city, that of all European languages, his tongue, in sound, most closely re-

sembled the Italian, and we were, in fact, agreeably surprised to find it, as it then for the first time impinged upon our ears from the lips of a native, soft and mellifluous as the purest Tuscan. It is not, however, the hope of discovering a corresponding similarity of sentiment between the writers,—though such an inquiry, too, might have both its interest and its utility,—but it is simply the coincident arrival upon our table of the four numbers of the "Hygiea," and of the volume entitled "Gli Spedali," which leads us, on the present occasion, to compare the accounts of some of the medical, charitable, and educational institutions of this and the neighbouring empire, given by the inhabitant of the rugged north, with the description drawn of the same by the denizen of "sunny Italy."

As, however, the authors whose writings we thus purpose to examine, have not followed exactly the same route, and do not in all instances dwell upon the same objects, our review will rather enable the reader to compare the general tenor of their remarks, than aim at instituting a rigid parallel between their observations. We shall commence with the notes given by Professor Santesson of his visits to the principal medical schools of Italy, France, Holland, and England, as, after a long intermission, they re-appear in the April and subsequent numbers for the present year of the Hygiea. We have already had occasion to bring Professor Santesson under the favourable notice of the readers of this Journal, in connexion with his work upon the hip-joint and its diseases, and we trust he will now, without any further suspension, complete the account of his European tour, the publication of which he had discontinued so far back as December, 1850.

The number of the Hygiea we have alluded to contains the conclusion of the Professor's tour in France, and an account of his visit to Holland, which latter country has three medical faculties in the Universities of Leyden, Groeningen, and Utrecht. In addition to these there are three medico-chirurgical schools,—one in Amsterdam, forming part of the "Athenæum," one in Deventer, and one in Franecker. There are, also, an institution for the education of military physicians, and a veterinary school, both in Utrecht; and a smaller medical school in Rotterdam. The author pays a well-merited tribute to the talents and labours of Schroeder van der Kolk, Mulder, Donders, Harting, Van Deen, and other distinguished Dutchmen; and adds, that "it may deserve to be mentioned, as a proof of the scientific life and literary activity which prevail in Holland, that in that country which, in point of population, is inferior to Sweden, there were published, in the

year 1851, not less than twenty periodicals on subjects connected with natural history and medical science, about twelve of these being more exclusively devoted to physic and its several branches."

But we must pass on to the division of his papers headed "Great Britain and Ireland," as being the portion which is more immediately interesting to ourselves; but in doing so we regret to find, that the numbers of the Hygiea we have as yet received do not bring us to the particulars of his visit to our own part of the United Kingdom[a].

We think it both interesting, and in a high degree instructive, to learn the judgment passed upon us by strangers; and, as the author's general remarks on these kingdoms show deep observation on his part, and contain much truth, we shall, at the risk of extending our review beyond its proper limits, translate them at length:—

"The medical schools of Great Britain, as well as her entire educational system, exhibit many remarkable and striking peculiarities. A stranger, accustomed to the institutions of Scandinavia and the Continent, will certainly be surprised at what meets him on his first appearance in Albion's insular realm. The picture which here strikes his view will, at the first glance, doubtless, attract his attention by the immense, we might almost say colossal, dimensions it presents, and by the changing, stirring animation it exhibits. If he undertakes to examine its several parts more closely, they will, both in their origin and in their relations to the other parts, remain a riddle to him, unless he had previously. either by study, or by personal experience, made himself familiar with the English national character. Of this the entire system of instruction in England, as well as all the other social institutions in that country, is a derivative and a faithful reflexion. It is evident that both have grown on peculiar ground.

"If we direct our attention especially to the medical educational institutions, we find a strange intermixture of old and new; of mediæval forms side by side with the most modern regulations of the nineteenth century. We may learn much by the comparison:—everywhere life, though, if I may so express myself, in unlike degrees, of unequal strength, and therefore with unlike results. We see it, under the operation of centuries, extending and finally bursting the old form, creating

[a] While these sheets are passing through the press we have received the Numbers of the Hygiea for August and September last, containing the continuation and conclusion of Professor Santesson's tour, but from the late period at which they arrived we are obliged to postpone a notice of them until our next Number.

new paths for itself, and developing in new directions its indwelling power. It would be a manifest injustice to ignore the Englishman's pious veneration of what is ancient and prescriptive. His country, his political and municipal institutions, on the contrary, plainly declare, that he can boast of possessing this quality in a higher degree than most other civilized nations, but the *free* development of the several moral and intellectual powers, which makes it possible for him to become all that he is capable of becoming, and permits him as man in his family, and as citizen in society, to accomplish the best he can according to the talent he may possess, neutralizes the slavish and excessive respect for what is old, and hinders it from degenerating into a lifeless formalism. It is the general state of things I here advert to; it is the medal's obverse which is so bright and beautiful;—it has a reverse on which the antithesis is but too remarkable, as will be seen in the following exposition.

"The above development of individuals to a free and independent personality, both in private and in public life, begun with the earliest education, and subsequently steadily carried on, is an ancient national inheritance in England[a]. It is it which peculiarly constitutes the country's internal moral strength, and makes its people a free and mighty nation. It is this circumstance which gives even to the great mass of the people a maturity and independence in thought and action which makes them as worthy as they are legally entitled to govern themselves. The old forms indeed are still partly adhered to according to ancient custom, but they are not considered to be of importance, and the spirit which animates and directs the whole is strong enough, in spite of such obstructions, to make a way for itself to the desired object. I am acquainted with none who go so directly to the point as the Englishman. He has no mind for long circumventions or indirect methods, nor does he ever lose sight of the main point, either in laying out the plan of an undertaking, or in putting it in execution. With clear and ready comprehension he sees a thing in its true light, and is little troubled with what are called considerations. It is thus he has obtained the advantage over most if not all

[a] "I speak here of the great and predominant so-called educated part of the nation: for a well-marked contrast to the above condition is presented by the legions of mental and bodily paupers, which principally consist of, and are recruited from, the numerous families of the factory labourers. The position of the latter has long formed an exception, and that of the most characteristic kind, to what I have described in the text. During the last ten years, however, their situation has been in many respects essentially improved, and there is reason to hope that they may still more and more attain the enjoyment of enlightenment and the happiness and blessings of true liberty."

other nations, in what he himself calls 'common sense' and 'practical ability.'

"As a proof, on the large scale, of what I have above advanced as to the independence and moral maturity which distinguish the mass of the English people, it is only necessary to refer, as one example among many, to their educational institutions, from the lowest to the highest—the universities. It will doubtless, surprise many to hear that the important subject of education is in England for the most part intrusted to the free choice of the commonalty. If they wish to seek and procure education, they themselves examine where and how it can be obtained, and they moreover pay the cost themselves. Government is on this point for the most part passive, and merely takes care that nothing done in this way is hostile to the Established Church, or contrary to the existing law. In other respects, freedom of education has long been an acknowledged principle. A consequence of this is, that with very few and comparatively inconsiderable exceptions, all educational institutions are of private foundation; and this is true of the entire series, from the smallest infant schools up to the high schools or universities. It is, in fact, a very limited number of Chairs in the last-named establishments which are instituted and salaried by the State. The majority are founded on private donations, and the denomination 'university' is only a collective name for an assemblage of all these Colleges and Chairs, often created at different periods."

The question of granting the boon of public education on an extended scale to the English people has, it is true, been mooted; but as yet the national system, if compared with the comprehensive plans existing in America, Prussia, and other countries, forms but a small exception to the truth of the author's remarks.

"The state of things now described thus exhibits," continues Professor Santesson, "an essential difference between England and what is found both with us and on the Continent. The very circumstance, that a subject so important and momentous to the State as that of education, can be left almost entirely in the hands of private individuals or corporations, indicates both deep intelligence and a general recognition in society of the value and importance of education. It shows that the nation has emerged from childhood, and can stand forward and act as an independent and mature moral personality. What a striking contrast to the countries where the State is compelled, like a guardian and monitor, for the most part to defray and administer nearly the entire of the people's educa-

tion, even that part of it which ought never to be given elsewhere than within the bosom of the family! It is not enough that the State bears the expense of the institution of schools and educational establishments, and pays, as well as it can, teachers in them; it must almost carry the younger children to school, and with all kinds of rewards entice the elder to come, in spite of the indifference of parents and guardians, or their obstinate repugnance to such 'schemes.' It is a sad proof of the moral condition of the mass of the population of a country, where the reality of the state of things I have just described is testified by daily experience, and, more than anything else, demonstrates its mental immaturity. People invoke the State and appeal to the Government as if they themselves had neither ability to think, nor power nor call of duty to act. The limits of this notice do not permit me to investigate more closely the reasons and causes of a state of things as humiliating as it is worthy of the attention of every patriot. I have merely endeavoured to point out this as, in my opinion, one of the principal causes of the dissimilarity presented by the educational institutions of England, and among these, by the medical schools, to our own and those on the Continent."

The question, however, naturally arises in the mind, whether this indifference to education be a cause or a result of the ample provision made in Sweden for bestowing its blessings on the community. Professor Santesson's remarks would go to prove that there is much wisdom in England's non-interference with those who are able to procure instruction for themselves, but undoubtedly it is the first duty of a State to see that none of its members remain in ignorance; and our country, with all she has accomplished, has much to answer for in her past shortcomings in this respect, as the author has himself pointed out in reference to the factory children, and the families of the manufacturing labourers[a].

The author points out how all public bodies or corporations in the United Kingdom originate in the first instance with the people themselves, and that it is after these originally private societies have proved their importance or general utility, that they are recognised by the State and declared to possess public authority. He also shows, that while in Sweden the power of examining and conferring degrees is considered to rest almost inseparably with the bodies engaged in teaching, the College of France is a remarkable proof not only of the possibility,

[a] See on this subject a work entitled, "Remedies suggested for some of the Evils which constitute the Perils of the Nation." Seeley, Burnside, and Seeley, London. 1844. Second Edition, page 135, *et seq.*

but even of the advantage, of an opposite state of things; and that, so far as medical education is concerned, Great Britain and Ireland agree in this respect with the last-named institution: an arrangement which, he observes, must obtain in a country where the business of teaching is not restricted to certain schools or institutes. Thus, he adds, while the number of schools is almost Legion, there are in England but six institutions which are empowered by Charter or Act of Parliament to confer medical degrees, or the right to practise medicine, surgery, midwifery, or pharmacy: those which he enumerates are, the Universities of Oxford, Cambridge and London, the Colleges of Physicians and of Surgeons, and the Apothecaries' Society.

Professor Santesson next enters at length into a description of the University of Oxford, its members, with their stipends, the terms, the regulations, system of education, &c. In speaking of the medical course, he observes that it is remarkable, that among the requirements laid down for obtaining the degree of Bachelor or Doctor of Medicine, not a word is said about attendance on hospital, or of the necessity of clinical institution,—an omission which is the more strange, as Oxford possesses an hospital (the Radcliffe Infirmary), containing 120 beds, in which 1000 or 1100 patients are annually treated, but where no regular clinical instruction is given. It ought to be added, he says, that the students of their own impulse (drift) supply this striking deficiency in the academic regulations, generally by attendance on some of the London hospitals.

Having described the regulations for obtaining medical degrees at Cambridge, he observes that this institution comes nearer in its general system to the requirements of the present time than the sister University of Oxford, while both are manifestly deficient in the arrangements for medical education. Besides this deficiency, it is evident that the small cities in which these universities are located can never afford opportunities of acquiring a knowledge of practical medicine at all equal to those obtainable in the metropolis and in the hospital schools of the larger provincial towns, and that the number of medical men competent to convey the necessary instruction must in them be very small. But in fact "the new shoots incessantly sent forth by the branches of the tree of science, the new paths and directions which the human spirit of investigation, time after time, strikes out for itself and pursues within the boundless domain of knowledge, must more and more plainly demonstrate the impossibility of collecting together and uniting in one place, and above all in a minor city, all the ramifications of science comprised in the idea of an university."

The author justly condemns the neglect by the ancient universities of professional education, a defect, the existence of which, he observes, among other evil consequences renders impossible, or at least difficult, the necessary connexion between theory and practice, and deprives practical avocations of public respect and co-operation.

Such considerations, with others partly religious and partly political, led to the foundation of the University of London, an institution based on the principles of being independent of the Established Church, and open to the professors of every creed, and of recognising the necessity of having the more prominent branches of the practical sciences specially represented. Of this and its two component parts, University College and King's College, the author gives a full description, the former holding the principles first mentioned, while at the latter, its *quondam* rival, the same religious restrictions are enforced as at Oxford and Cambridge; though the system of education is arranged on a more extensive and more liberal scale, better suited to the requirements of the present day, and in many respects similar to that adopted at University College.

The author next describes the College of Physicians, the College of Surgeons, and the Society of Apothecaries. In speaking of the first he alludes to the evening meetings—"access to which," he observes, "is easily obtained, and they, as well as those at the College of Surgeons, and the Medico-Chirurgical Society are both agreeable and useful to the traveller. Introduced by a friend, he here meets assembled a number of notabilities, and can easily make acquaintance with whom he wishes. By this much time is saved; visits and dancing attendance are avoided, and the stranger has always the golden option of easily continuing, or of breaking off without offence, any acquaintance he may have formed at them."

With the College of Surgeons he describes the museum, to omit which would be, he observes, like writing a monograph on modern Rome, and ignoring the existence of Saint Peter's. In connexion with the Society of Apothecaries he alludes to their Hall at Blackfriars, which has, he says, undoubtedly the largest laboratory and the most extensive drug trade in the world.

From the foregoing it will be evident that Professor Santesson is a deep thinker, a careful observer, and a faithful recorder of what he has seen. We therefore hope shortly to receive further numbers of the Hygiea, and thus to be enabled to bring before our readers an abstract of his remarks on the medical schools of England, to which, having disposed of the

"licensing bodies," he promises next to direct his attention; as well as of his account of the institutions which lie westward of St. George's Channel, and more immediately concern ourselves.

Dr. Landi's book commences with a description of the hospitals of Paris and of London, arranged under the three heads of the General Hospitals, the Special Hospitals, and the Hospices; the latter including, in the case of Paris, the Maternité, the Salpêtrière, the Bicêtre, the two Hospices des Incurables, one for men and one for women; the Foundling Hospital; the Hospice des Mènages, for old widows and widowers, some of whom pay an annual contribution; the Institution de Sainte-Perine, for old people of both sexes, who pay 600 francs a year; and the Hospice de la Rochefoucauld, for superannuated and pensioned male and female employés of the hospices; and, in the case of London, the Bethlem, the Magdalen, the Foundling, and St. Luke's Hospitals, and the Deaf and Dumb Asylum.

The author's general remarks on the hospitals and hospices of England are strikingly similar to the observations of Professor Santesson in reference to her educational institutions. "In no respect," he observes, "do they, either in their foundation or management, resemble those of France. There is no directive centralization, no dependence on the Government, no bureau, no central pharmacies, no impositions on the citizens, on the municipal corporations, on the State, or on the public spectacles. The same spirit of association which guides the English in their great commercial speculations presides over the foundations of their charitable institutions, among which the hospitals and hospices hold the first rank.

"The spirit of association is perhaps nowhere so prevalent as in England. Philanthropic societies, as well as those of mutual succour, are most numerous, and watch with activity and love over the indigent, the orphans, the prostitutes, the children of convicts, the pregnant, and the sick. To enumerate all these societies, and the institutions they have called into existence, would, even were it possible to do it, carry me too far."

The second part of the volume is devoted to a comparison of the clinical instruction given in Paris and in Tuscany. The author adopts this plan, because, in the hurried examination he was able to give the system followed in London, it did not appear to him to differ materially from that pursued in the French metropolis: to compare either of these, then, with the

mode of teaching employed in his own country, was clearly the course likely to be most useful to the majority of his readers. The method of clinical instruction being the same in Paris in medicine and in surgery, may be studied as applied to either medical or surgical cases; the author selects the latter, while he purposes, in speaking of the Tuscan mode, to examine it (for reasons which will appear), as applied to medicine.

"Surgical clinical instruction in Paris," he observes, "is at present nearly in the state in which Dupuytren left it." In describing the mode of teaching followed by this illustrious surgeon, the author quotes Vidal de Cassis. "In the wards he spoke but little, particularly to the pupils. In cases in which the diagnosis was difficult, Dupuytren did not prolong his examination beyond the usual time; nor did he either at the bedside or in the lecture-room allude to the case until the diagnosis was, in subsequent visits, established. He rarely communicated his doubts to the audience. When he explained the elements of his diagnosis to the pupils, he scarcely ever employed the indirect mode; he did not proceed by exclusion: having once acquired certainty, he took ostensibly the direct method, and this it was which he pointed out to his pupils. This procedure (Vidal justly observes) is more brilliant; it gives the teacher an air of superiority which is more seductive to his hearers; but it appears to me that it would be more for their advantage that the professor should communicate his doubts; that he should, so to speak, make his auditory assist in the intellectual labour by which he arrives at the solution of the chirurgical problem. It is necessary that the pupil should be made acquainted with its mechanism in order to make use of it subsequently."

The author illustrates his subject by accurately describing Velpeau's morning visit to La Charité. As a stranger, he felt it a loss that the papers appended to each bed, giving the name, age, and residence of the patient, did not also exhibit the diagnosis, causes, symptoms, and treatment of his ailment,—an omission which he considers to be injurious to both the pupils and the patients,—depriving the former of much instruction, and subjecting the latter to repeated interrogatories, which, in some diseases especially, must be objectionable. He also reprehends the silence observed by some of the French surgeons as to the nature of the affections under their care: and illustrates this want of communicability by some cases which he narrates.

Another defect which he finds in the system is, that the great majority of the cases are not placed upon record: conse-

quently, many practical observations are lost, the utility of preserving which appears to him to be incontrovertible. "It is only a few particular cases which see the light through the exertions of the journalists, or of some of the students, or by being introduced into works published by the professors themselves; the greater number are lost; while a smaller proportion are noted in the album of some student, with the laudable design of profiting by this means of instruction." The principal cause of the want of clinical teaching at the bedside he has described appears to the author to be the excessive number of patients, which obliges the professor to go round the wards with great rapidity: how much better, he adds, would it not to be to assign twenty-four or thirty beds to each, than forty, sixty, or even more.

The professors are obliged to give clinical lectures three times a week. They commence by giving the diagnosis of any new cases which may have been admitted during the preceding forty-eight hours; but in doing so they use the direct method, and are so concise and dogmatical, as to afford but little instruction.

The author describes and gives a woodcut of Professor Laugier's instrument for taking blood from inflamed bones, and for giving as early as possible exit to accidental productions which may have formed in their interior; but he considers that the irritation produced by perforating the bone must more than counterbalance the relief which it might be supposed the inflamed part would derive from the abstraction of blood. Moreover, in the case in which Dr. Landi saw the instrument tried, it failed to draw a drop of blood.

The author next remarks on the want of uniformity in the doctrines taught in the several hospitals and at the faculty; not only do the doctrines of the faculty differ from the lessons taught at the hospitals, but those inculcated at the Hotel-Dieu, for example, are at variance with what are advanced at La Charité. He concludes his chapter on clinical instruction in Paris with a digression on French medical literature, characterizing the works of French writers as being, in general, nothing else than copious collections of clinical facts, never or rarely reduced to general principles,—"a mode of compilation," he adds, "which, in my opinion, explains the facility with which such works are composed. It is true that all sciences are formed by the collation of many particular and similar truths, noted by experience: whence the discovery of facts is regarded as the first part of knowledge, and constitutes the foundation of

science; but this is not enough, since the investigation of causation must be joined to the recognition of facts, and must be followed by the scientific arrangement of the facts themselves."

Having pointed out the principal defects which appear to him to prevail in the plan of clinical instruction pursued in Paris, Dr. Landi proceeds to show what is, in his opinion, the best mode of avoiding them, and this is, in fact, the method adopted in Tuscany. The latter appears to us, from the description given of it, to differ in no material respect from the system which has been for so many years pursued in Dublin and Edinburgh, and which consists in assigning a certain number of patients to each clinical pupil, who is bound to examine his cases before the visit of the physician, and to state the diagnosis and prognosis he has arrived at, with the treatment he proposes, before the class,—on which points he is subject to examination and correction by the physician. This system was, we are informed, introduced into Tuscany, and brought to perfection by Professor Maurizio Bufalini, characterized by a French writer as "a brilliant teacher, an ingenious critic, and a profound and able practitioner. Through him," continues the same writer, "the clinique of Florence has acquired an incontestable superiority over all the other cliniques of Italy"—and he might have said, adds our author, of France and England.

Having described the mode of reception, selection, and classification of patients in the hospital at Florence, the author proceeds to give a detailed account of Professor Bufalini's method of clinical instruction. He also enters fully into the consideration of diagnosis, which he divides into the direct, and that by elimination, the latter resembling, but, he says, not being exactly the same as, the differential diagnosis of the French; this latter distinction appears to us, we must confess, a little fine-drawn. Every individual who dies in the clinical wards is subjected to necroscopic examination, and the autopsy is made in the presence of all the pupils, the clinical physician, the professor of pathological anatomy, and the anatomical demonstrator. In these examinations, the microscope and chemical analysis are employed, nor are these important means neglected in forming diagnosis during life. Lectures on diseases, treated in the clinical wards, are only given from the Chair in cases which, from the singularity of their course or termination, or from the importance of the phenomena observed after death, demand fuller illustration than can be given at the bedside of the patient. As an example of such lectures, the author quotes one by Professor Bufalini, reported by Dr.

Lorenzo Fallani, on two cases of puerperal fever. To this chapter the author appends a model of the Tables kept in the hospital, filled by him with the history of a case extracted from the clinical books, as an example of the logical accuracy with which these Tables are prepared, and of the facilities they afford for collecting the particulars of any illness.

It will be seen that the author has, in speaking of clinical instruction in Paris, found fault by implication with that in London; in reference to this point, we would remind our readers of his opening statement, that his survey of the hospitals in the latter city was but a flying one. We have not ourselves had the opportunity of recent personal observation on this subject, but we believe that at many at least of the London hospitals especial pains are taken to make the clinical instruction as practical as possible.

Dr. Landi devotes the third part of his book to the study, in a practical point of view, of some surgical cases of greater importance seen by him in the hospitals of Paris, Lyons, and London, and to a comparison of the French and English practice with the Tuscan. He commences with the consideration of fractures as being the most frequent cases. It struck him as a most singular fact that, while some make use of mechanical means to keep fractures reduced, others rely upon position alone as sufficient to bring about perfect and regular reunion. Thus, in the clinique of Professor Malgaigne, at the Hospital St. Louis, the most complicated apparatus is employed, even including the barbarous hooks used for retaining *in situ* the portions of a broken patella, and which are made to traverse the skin, the areolar tissue, the fibrous expansion of the tendon of the rectus muscle, the periosteum, and the bone,—a plan of treatment which the author justly deprecates as productive of the worst consequences; while in that of Jobert de Lamballe, the majority of fractures are treated with mere position maintained by the most simple means. In the other hospitals of Paris, there is, observes Dr. Foresi, an Italian writer quoted by our author, less of exclusiveness and more of rationality.

In London, where fractures abound, the diversity of principles and of practical systems which prevails in Paris does not exist, but these accidents are treated nearly by one method. The author gives a long description, illustrated by woodcuts, of an apparatus of his own for fractures of the lower extremities, by which the horizontal, semi-flexed, and simply oblique positions can be easily obtained and kept up. He also points out at length the cases in which each of these positions is most suitable.

In the section upon orthopedics are given a description and representations of Mr. Tamplin's apparatus for counteracting lateral curvature of the spine.

The following chapters are devoted to the consideration of organic strictures of the urethra; of lithotomy and lithotrity; of the treatment of affections, evidently cancerous, with the actual and potential cauteries; of cysto-vaginal fistulas; of the operation for strangulated hernia; of excision of the tonsils; and of the operation for cataract. In the chapter on that subject, Dr. Landi describes Professor Jobert's (de Lamballe) operation for the cure of vesico-vaginal fistula; but although he saw one patient in whom this infirmity had been completely removed, his account is not, on the whole, very strongly in favour of the operation, as he admits that in the majority of cases it is necessary to repeat it a second and even a third time.

The fourth and last part of the work is occupied with a description of the anatomical and physiologico-pathological museums of London, including the Hunterian collection and the Museums of St. Bartholomew's, Guy's, the University, St. George's, and the London Hospital.

In conclusion, we would call attention to the great advantages derived by our professional brethren in Sweden from the frequent publication of the observations made by intelligent and scientific members of their body during their visits to countries which, from geographical position, are more favourably situated than their own for carrying on united efforts for the advancement of knowledge. So much are these advantages appreciated in that kingdom, that such journeys are often undertaken with the assistance of a stipend from the Crown,—a condition of this support being, we believe, the publication of notes of what has been observed during the tour. Independently of the intrinsic merits of the works we have on the present occasion noticed, and of the knowledge of ourselves which we may derive from the observations of our visitors, we have especial pleasure in calling the attention of our fellow-countrymen to such "pencillings by the way," because in so doing we feel that we are contributing our share, though this be but a small one, towards drawing the profession, in all parts of the world, into what it ought to be—one brotherhood. And we fervently trust that the progress of so desirable a fraternization may not be interrupted by the rude and ruthless hand of war, which now threatens à disruption of friendly intercourse between man and man.

A Manual of Obstetrics. By Thomas F. Cock, M.D., Physician to the New York Lying-in Asylum, Physician to Bellevue Hospital, &c. New York: A. S. and W. Wood. 1853. 12mo, pp. 250.

However useful and proper short manuals may be in their place, we have a great dislike for such scanty expositions of medical science: they give to the student a pert smattering of information, without the slightest real knowledge of the subject; and, what is worse, it is so much easier to learn from them than from practical treatises, that there is great temptation to substitute the one for the other. It is true that, after fairly studying a subject, it may be of use to a pupil to run through such a book as the present just before an examination, but this is almost the only exception we would make to the rule.

Dr. Cock feels the necessity of an apology for publishing his work when there are so many valuable treatises, and he offers the following explanation:—

"Having been for several years engaged in teaching midwifery, I have experienced the want of some handbook for students attending lectures in this department,—a *skeleton collection of facts*, which, by being interleaved, might answer as a syllabus for the teachings of any school. I therefore took, as a basis, my notes of the lectures of Professor Gillman, and gradually, for a number of years, added such facts and opinions as reading and experience developed. Without seeking to turn aside the student from the study of elaborate treatises, from which alone he can learn reasons for practice, this little work is designed to convey, as briefly as possible, *facts*, as far as ascertained; and, where definite conclusions have not yet been reached, recent *opinions*, so as to present, as near as may be, a miniature of modern obstetrics."

We have looked through the volume, which shows familiarity with the present state of the science, and, so far as a bare enumeration of facts goes, we think Dr. Cock has succeeded; but, as we have said, we do not think that this is the way to *learn* midwifery.

On the Advantages of the Starched Apparatus in the Treatment of Fractures and Diseases of the Joints, being the first part of an Essay to which the Council of University College have awarded the Liston Clinical Medal. By JOHN SAMPSON GAMGEE. London: H. K. Lewis. 1853. 8vo, pp. 89: with woodcuts.

AT various periods, in the progress of surgery, we find efforts made to introduce an apparatus for fractures which should combine perfect immobility with adaptation to the natural irregularities of the limb. In Mr. Gamgee's treatise many instances are brought forward of this recurring tendency,—for example:

"The ancient no less than the modern Greeks employed a permanent apparatus which was applied soon after the receipt of the injury, and which with perfect security enabled the patient to move the limb in any direction; for the purpose of consolidating the apparatus, which was not removed from the moment of its application to that of a perfect cure, a composition, into which mastic entered largely, was used."

In Tunis, moulds of plaster are at present used in the setting of fractures; in India, potter's clay is applied for the same purpose; Ambrose Paré, Cheselden, a Frenchman of the name of Belloste, and others, brought forward the principle; and, in the present century, Baron Larrey in military practice, and Velpeau in civil, urged its adoption, and gave it the weight of their example. Velpeau does not, however, recommend it in all forms of fracture. We remember, when following his clinique at La Charité, to have seen it applied only to some of the simpler fractures, and to ununited fractures. It remained for Baron Seutin, of Brussels, to modify the immovable apparatus so as to render it applicable, in our author's opinion, "to all fractures, whether simple, comminuted, or compound, as well as to sprained and diseased joints, to wounds having a tendency to cicatrization, to cases of necrosis," &c.

In this country we are not aware of its being anywhere in general use, except for ununited fractures and chronic diseases of the joints; its success in these cases might have induced its more extensive adoption, but for the difficulty of arranging it so as to admit of inspection of the limb without disturbance of the parts. Now that M. Seutin has devised means for combining both objects efficiently, it will be certain to come into more general favour. To put forward its advantages over all other forms of apparatus, in every variety of fracture, is the object of Mr. Gamgee's treatise.

In the First Chapter the new mode of applying it, and the general principles of its action, are considered. Cotton-wool, lint, or tow, with splints of thick porous pasteboard, bandages, and starch, are the materials required. To illustrate the mode of application, he supposes us to have to deal with a case of recent simple fracture of both bones of the leg, a little above the ankle-joint; we must premise that he directs the splints to be *torn* to the required size, not *cut*, as the edges are thus made less hard and sharp:—

"Three splints are required: a straight one to be placed at the back, and to reach from half an inch above the heel to four inches above the knee; and two lateral splints reaching from the same point above the foot, to fit which each splint requires to be cut with a foot piece. From the commencement one assistant is charged with the duty of making extension from the foot, while another counter-extends from above. Reduction having been effected, the tendo Achillis, the instep, the ball of the great toe, and the proximate end of the fifth metatarsal bone being well padded with cotton wool, a dry bandage is applied from the root of the toes, over the heel and up the leg, with the precaution to reverse at the back and not over the crest of the tibia, where the ridges caused by reverses would be very liable to occasion painful pressure; the crest of the tibia may be additionally protected by a strip of cotton wool placed immediately over it; this is especially advisable when, from emaciation or deformity (e. g. rickety children), the crest is unduly prominent; the bandage is continued over the extended knee to a little below the middle of the thigh, care having been taken to pad with cotton wool the head of the fibula, the tuberosity of the tibia, the patella, and the tendons of the hamstring muscles. The surface of the bandage is now smeared uniformly with starch. . . . . At this stage the splints, previously softened by soaking in warm water, and smeared with starch on both surfaces, are applied to the limb; the back one should not reach further down than half an inch from the heel; but the foot pieces of the lateral ones require to be moulded so as to embrace the outer and inner edges of the foot respectively, and turn in to the sole. These three splints should not extend on to the thigh as far as the first bandage: care must be taken that they do not overlap anywhere, and that neither of the lateral ones reaches as far forward as the crest of the tibia: the assistant who holds them in position manipulates them so as to mould them accurately to the limb, while the surgeon fixes them by bandage applied with moderate and even pressure from below upwards; the apparatus is completed by starching the outside of the last bandage. As a preventative against displacement, so long as the apparatus is moist, a couple of dry pasteboard splints may be placed laterally."

So soon as dry, the bandages are cut along the front,—either with a pair of pocket scissors or with a button-pointed pliers

made for the purpose,—and in the middle line of the sole of the foot to admit of the limb being examined. The examination is effected by the surgeon turning down each side of the splint alternately, while an assistant holds the limb in firm contact with the other side. If the apparatus is found to press on any part, it is to be padded; if it be too loose, the edges are to be pared. It is then to be re-adjusted, and a bandage rolled over all, and starched externally. In a few hours the patient may get up and go about on crutches, slinging the foot in a bandage passed round his neck.

Mr. Gamgee insists upon extreme accuracy being observed in rolling the bandage next the skin, as neglect in this particular will cause œdema and vesications. We have found it an assistance when applying the *appareil* to moisten the bandage previously, and this practice has the further advantage of being cooling and grateful to the patient. Another important point is, that the joint above the seat of fracture must be fixed, and the muscles thereby hindered from displacing the fragments. Great merit is claimed for the apparatus in preventing shortening, owing to the mechanical impediment which is offered by its accurate adaptation to the eminences and depressions of the limb. This, no doubt, holds good where no great amount of effusion occurs before the bandages are applied; but we are not so sure that this advantage can be expected in the opposite condition; for, when absorption takes place, the apparatus will fit no longer, and mere paring of the edges anteriorly cannot enable the surgeon to bring the lateral inequalities to correspond with such accuracy as is necessary for the complete prevention of motion. It is in recommending the immediate application of the starch bandage in all classes of fracture that in our opinion Mr. Gamgee errs; we think he expects too much from his favourite *appareil* :—to quote his own words,

"We have next to consider the propriety of applying the starched apparatus when a broken limb is swollen in consequence of inflammation. In all such cases its application is advisable, provided the inflammatory action have not advanced to such a degree as to threaten the disorganization of the limb. It is easy to understand how, under certain circumstances, gradual pressure may relieve the pain of an inflamed part; and its probable efficiency in promoting the absorption of the effused plastic product is strictly in accordance with the established principles of surgery; moreover, by the pressure diminishing the caliber of at least the superficial vessels, it cannot but tend to moderate the afflux of blood; in other terms, to lessen the cause of inflammation, and its effect—*swelling.*

We confess we should shrink from applying powerful constriction to an entire limb in which any considerable amount of true inflammatory swelling was taking place. Pressure, under such circumstances, aggravates inflammation, and the admitted principles of surgery teach us to wait until nature has commenced the work of absorption before we apply it. So far from "moderating the afflux of blood," we believe that bandaging would have the effect of exciting the large blood-vessels to an amount of action sufficient to bring on rapidly a gangrenous congestion of the part, nor have we time to apply pressure as a "preventive of swelling" in the majority of such cases, even if it were wise to do so. Inflammatory effusion is generally the result of considerable violence, and is so rapid in its occurrence, that a few hours suffice to light it up to such an extent, that ever so slight pressure will be followed by suppuration or gangrene. For these reasons we agree with Sir G. Ballingall, that where effusion has taken place, or is likely to do so, it is better to wait the subsidence of inflammatory action before the application of the starch bandage. We must also except Colles' fracture of the radius from the list of those to which the *appareil* is applicable in the early stage. It would be mechanically impossible to apply it so as not to press the fragments of the radius towards the ulna, and produce deformity. The plain starched bandage may, however, be used with advantage in about the third week in place of splints.

The Second Chapter is devoted to the record of cases, among which will be found many of the simpler fractures successfully treated. The great advantages of the *appareil*, in an economical point of view, both to the patient and hospital, may be gathered from the fact of two patients who had sustained fracture of the tibia being in hospital only five days between them, instead of as many weeks each. A very oblique fracture of the femur, just above the condyles, also gives satisfactory results: the patient was able in nine weeks to bend his knee to a right angle, and had walked seven miles in one day. This is contrasted with Sir Astley Cooper's two cases, in both of which the attachment of the patella to the upper fragment caused great deformity and almost complete loss of motion in the joint. The apparatus is also well suited to fractured patella; by changing it once or twice in the course of treatment, approximation of the fragments can with greater certainty be effected. Mr. Gamgee also applies it to fracture of the neck of the femur. For the mode in which this is effected we must refer the reader to his treatise, the illustrations of which, good throughout, will

explain it more satisfactorily than pages of description. In cases of compound fracture, arrangement is made for dressing the wound by cutting a trap-door in the splint opposite to it.

In the Third Chapter are enumerated the superior merits of the *appareil immobile.* These consist in diminution of pain, in facilities of cleanliness, in abridgment of the period of confinement, and in economy both of the patient's and of the surgeon's time; in economy to hospital by cheapness of material, and by early discharge of patients; and lastly, in lessening the chances of deformity and (in the case of the aged especially) of death. These are great advantages; but we see no reason why they should not be obtained in those cases to which the *appareil* is suited. To military surgery it will prove a great boon; the material for its construction is cheap and light; and the rapidity with which an immovable case is provided for a fracture will often enable the surgeon to spare a limb which would formerly have been sacrificed. M. Seutin is said to have applied it to stumps; but no particulars are given of the mode of application or of the results. An interesting case is narrated from the practice of Baron Larrey. He sent a soldier, whose arm he had removed at the shoulder joint, from Moscow to Provence, on foot, after dressing the stump with an apparatus rendered immovable by white of egg. The dressings were not removed until his arrival at the end of the journey, when the stump was found perfectly healed. This case is, however, so plainly a fortunate accident that no rule of practice is sought to be established by it.

We were disappointed in the meagre character of the Chapter devoted to the subject of diseased joints; only one case is given, and there is no novelty in that, as the treatment of such affections by pasteboard moulds is common. Nothing is said of the use of the *appareil* in ununited fracture, an accident to which, of all others, it is peculiarly adapted. If constitutional causes are set aside, want of union will almost invariably be found to arise from motion of one or other of the fragments; hence its comparatively frequent occurrence in the upper part of the humerus, in the radius, and in the oblique fracture of the tibia, where the weight of the lower fragment combines with the action of the muscles on the upper to cause constant motion. Many, if not all, of these cases admit of cure by the starched bandage applied in the ordinary way without splints. Velpeau uses dextrine in place of starch, and, from the rapidity with which it dries, and its perfect inflexibility, it is well adapted for them; but the difficulties of cutting it forms a barrier to its use, when the limb requires to be inspected soon

after the application. In treating a very oblique fracture of the tibia lately, which had remained ununited for two months in spite of great care on the part of the attending surgeon, we found it sufficient to use three layers of bandage, the middle one being well soaked in starch; and, in six weeks' time, the patient returned with the apparatus as firm as possible, and, upon removing it, union was found to be complete. The tilting forward of the upper fragment, in these oblique fractures of the tibia, is attributed by Mr. Gamgee to the action of the quadriceps extensor cruris; as he has found that division of the tendo Achillis does not prevent it, and that, consequently, the gastrocnemii are not the cause. In the above case the bandage was not brought over the knee, and the quadriceps was thus left uncontrolled, yet the deformity disappeared, and on removal of the bandages the tibia was found perfectly even. Without denying that the muscles exert great power in displacing *both* fragments, we think that the main cause of displacement is to be sought in the weight of the foot and lower fragment, and the best remedy will be found in judiciously slinging the limb from a cradle during the drying of the starch bandage.

The Fifth Chapter contains further particulars of the history of the *appareil immobile*, and some of the opinions of its value and of its disadvantages.

Making allowance for the enthusiasm of Mr. Gamgee, as the pioneer in this country of an important improvement in surgical appliances, his book has our hearty commendation. The errors in it are those of excessive zeal, but these a little more practical experience will soon dissipate; and we feel assured that the author will meet his reward in seeing his favourite *appareil immobile* introduced into more general use.

Hand-book of Chemistry, Theoretical, Practical, and Technical. By F. A. Abel, and C. L. Bloxam; with a Preface by Dr. Hofmann. London: Churchill, 1854. 8vo, pp. 724.

A very great want to the English student of practical chemistry is supplied by the publication of this volume. Our language abounds in excellent works on theoretical chemistry; but since Dr. Reid's book had, from the rapid advancement made in the science within the last twenty years, become nearly obsolete, the laboratory student has been constantly at a loss for a similar aid which would embrace all the discoveries of our own time. Messrs. Abel and Bloxam, formerly distinguished students, and for some years assistants to Dr. Hofmann

in the Royal College of Chemistry, present in the book before us the combined results of their *practical* experience in such a form "as shall enable even those who can devote but a comparatively short period to the study of this necessary branch of an extended education, to acquire, with the least possible expenditure of time, a knowledge which will either suffice for the ordinary applications of chemistry to the useful arts, or will serve as a sound basis for the education of a professional chemist."

The book is divided into four parts. First, an introduction, which treats of specific gravity, definition of chemical terms, equivalents, affinity, nomenclature, and notation, and the phenomena relating to the physical conditions of bodies—for example, solution, crystallization, diffusion of gases, &c.

The second is devoted to a consideration of chemical manipulation, and contains a full, yet sufficiently concise, description of all the apparatus necessary for the laboratory, with directions as to the mode in which they are to be employed, and instructions for the formation of such as can be constructed by the manipulator: under the latter head the authors give two most practical sections on the use of the blow-pipe, and on glass-blowing. In the third part the reader is presented with a very complete outline of elementary chemistry, including the metals and non-metallic substances. The fourth and last part is entitled analytical chemistry; it contains directions for qualitative and quantitative analysis, with a description of the necessary apparatus and requisites, and a general view of analytic operations, with an account of special methods.

It would be quite foreign to the scope of this Journal to give an analytical review of this book, even if it were possible to do so; we must, therefore, content ourselves with speaking in the highest terms of both its spirit and execution, and commending it to all anxious to acquire a *practical* knowledge of one of the most important accessory branches of medical science.

Clinical Lectures on Pulmonary Consumption. By THEOPHILUS THOMPSON, M. D., F. R. S., Physician to the Hospital for Consumption, &c. London: Churchill. 1854. 8vo, pp. 211.

The Pathology and Treatment of Pulmonary Tuberculosis, and on the Local Medication of Pharyngeal and Laryngeal Diseases frequently mistaken for, or associated with, Phthisis. By JOHN HUGHES BENNETT, M.D., &c. Edinburgh: Sutherland and Knox. 1853. 8vo, pp. 142.

INASMUCH as the contents of the volumes before us have already appeared in different periodicals,—Dr. Thompson's being a reprint of lectures originally delivered at the Brompton Hospital for Consumption during the spring of 1851, and published in the Lancet for the same year; and Dr. Bennett having, in the pages of the Edinburgh Monthly Journal of Medical Science for 1850 and subsequently, either as original contributions or in the form of reviews, set forward his opinions,—it is scarcely requisite that we enter into a full analysis of those opinions or doctrines with which we have no doubt the profession is already perfectly familiar. Our object in the following observations shall rather be to inquire, if, now that they have assumed an independent form, they worthily contribute to the reputation of their authors, and are calculated to uphold the character of existing medical literature, as fairly representing our professional knowledge.

There is nothing which more truly demonstrates the character of medicine as a "science of observation," than a comparison of coincident writings on the same subject. One author is found to attach the greatest importance to some particular appearance which another scarcely notices; one book to warmly advocate opinions and doctrines, which another either altogegether denies, or but most feebly recognises. Yet, as the end of all such writing and the object of each author is presumed to be the same, viz., the more perfect recognition or treatment of disease; and as each generally offers proof of his special eligibility to afford rules for our guidance, founded on separate success in diagnosis or cure, we willingly encourage every effort in so good a cause, and gladly welcome each new book, as anticipating from its perusal some addition to the knowledge we possess.

When it is recollected that human life and human happiness are liable to be most materially influenced by the teaching of medical writers, it becomes a matter of solemn duty for every

practitioner who aspires to such distinction to carefully scrutinize the opinions he offers, lest he permit enthusiasm to so guide observation, that facts which militate against his particular conceptions be but feebly described; while it is a responsibility, which equally devolves on those to whom is intrusted the scrutiny of such writings, to impartially investigate their doctrines, and fairly estimate their merits, since much of uncertainty in practice, and scepticism in medicine, may be thereby anticipated.

Were we to enumerate those authors who have written on the subject of pulmonary tuberculosis or consumption, we should array a host of names that would astound many of our readers, from whom the inquiry might naturally proceed,—Whence has arisen the necessity for such a plurality of books, and in what respect do those writings differ? The answer to the first part of this question shall rest in our reply to the second, by an investigation of the two volumes now submitted to us for review.

In his Preface, Dr. Thompson, while disclaiming the adoption of any favourite theory, informs us that, "in the preparation of each lecture the first step was to collect and tabulate all the facts which the wards might happen to supply for the illustration of the particular topic under consideration." This method of forming an inference, is, we conceive, open to many objections, for it presumes an identity of general as well as special phenomena, which is opposed to our experience of disease. 'Remote and superficial generalities,' observes Lord Bacon, 'are no more aiding to practice than a universal map is to direct the way between London and York.' In like manner, we believe the accurate detail of the particular characters of an individual case, is of far greater value than the particular detail of the general characters of many cases. One method increases our number of practical truths; the other confirms the accuracy of nosological descriptions, the value of which it is scarcely requisite to enter on.

In his Introduction, Dr. Thompson proposes a new nomenclature for the sounds revealed by the stethoscope, and offers a tabular form to mark their situations and the diseases in which they occur. We really cannot see, and therefore cannot be expected to appreciate, the value of the simplification he sets forward. The terms "bubbling," "clicking," "crackling," are, when applied to thoracic acoustics, to our minds quite as mystical as their synonyms, "mucous ronchus," "humid crackling ronchus," "dry crackling ronchus;" and though Dr. Stokes may be blamed by the author for having sanctioned the use of the ambiguous

term, "muco-crepitant ronchus," we are so wedded to our own opinion as to consider that it is the very best term which the condition it is intended to signify would admit of, and, since these are the terms used by all writers on the subject, we believe that their alteration could not fail to be productive of the greatest inconvenience, if not disadvantage. Dr. Bennett has more modesty, for he declares in his Preface, "that having nothing to add to the many masterly works which treat of the symptomatology, morbid anatomy, and diagnosis of pulmonary tuberculosis, he will not enter into them further than may be necessary to evolve the principles on which he considers a correct treatment should be based," and thus leads us to anticipate that this very important part of his subject shall be the more carefully considered. In one work, we may, therefore, expect to find "The Deformed Transformed," in the other, "The play of Hamlet, with the part of the Prince omitted." Dr. Bennett does not, however, intend us to suppose that no novel suggestions had arisen in his mind, since he states that "having held the position of Pathologist to the Royal Infirmary of Edinburgh for five years, and having performed and recorded 2000 post-mortem examinations, gradually one great fact became impressed upon his mind, viz., that all organic diseases occasionally presented a tendency to spontaneous cure;" and adds—"In no organs were such appearances more common than in the lungs, and of no disease was evidence of a spontaneous cure more frequent than of pulmonary tuberculosis." As regards the first part of this discovery, we had in our simplicity conceived, that it was from the recognition of such a fact, the old motto confirmatory of the value of the "vis medicatrix naturæ" had arisen; and though it is true that many years ago Dr. Graves had observed, "It may be looked upon as established, that phthisis, like most other diseases, *does not always necessarily progress to a fatal termination*"[a]; and that Drs. Carswell, Clarke, Louis, and Williams, had also attested the same,—the lattter of whom, ten years previous to Dr. Bennett's appointment, had not only described the process of cure in a phthisical cavity, but also those causes which might prevent it; yet we were not, without Dr. Bennett's assurance, prepared to go to the full extent of asserting, that tubercle in the lung, when fully established, is not more formidable than the general run of diseases, or that the unaided system manifests towards it, as towards other lesions, an equal facility for accommodation or repair, by which its influence might be counteracted or its presence got

[a] Clinical Lectures, edited by Neligan, vol. ii. p. 113.

rid of; and even now, we would have wished, to make assurance doubly sure, Dr. Bennett had more fully furnished us with those positive grounds which had led him to such a conclusion as he advances in the second part of this discovery.

Dr. Thompson plunges at once "in medias res," and commences his first chapter by informing us that the original suggestion of a stethoscope is due to a certain Robert Hooke, an English surveyor, who lived about two centuries ago; but admits, that this by no means lessens the merit to which Laennec is entitled.

An interesting case is detailed in the early pages, regarded by the author as one of hydatids of the liver, which, by absorption and ulceration, found their way into the lungs, and were expectorated. Dr. Thompson attributes the origin of such growths to either hereditary liability, vegetable diet, or blows. We are not yet in a position to speak with confidence of the laws which influence the transmission of disease. That hydatids are associated with a special constitutional condition, the circumstances under which they are developed lead us to believe. Without altogether adopting Dr. Baron's views, that such are strumous growths in a primitive state, we are satisfied that the connexion between the occurrence of the entozoa and hydatids with the scrofulous habit as pointed out by Dr. Graves[a], is deserving of the closest attention. We question much if vegetable diet specially predisposes to their development, as our opportunity of studying the effect of such has been unusually extensive, and in a very large number of post-mortem examinations of the bodies of those whose diet was almost exclusively of that nature, have we failed to observe the undue manifestation of these appearances.

Proceeding further, we find the use of Dr. Sibson's or Dr. Quain's chest-measurers advocated, as determining the exact amount of the deficiency of the thoracic movements. The true value of such appliances has been already so fully canvassed in the pages of this Journal[b], that we will only observe, we consider them as dangerous instruments, in inexperienced hands leading to error, and at best of but little assistance to those possessing the sound use of eyes and ears.

Dr. Thompson maintains the close association of spasmodic asthma with chronic pulmonary disease. Dr. Black, in his able paper on "The Pathology of the Bronchio-Pulmonary Mucous Membrane," has, from histological observation, arrived at a similar conclusion, which has, however, but partially removed the difficulty, since the uncertain state of our know-

[b] *Op. cit.*, vol. ii. p. 90.

[a] Vol. xiv., p. 145.

ledge, as to the immediate existing cause of this affection, is sufficiently manifest in the character and diversity of the remedial agents set forward.

Dr. Thompson's second lecture is principally devoted to the consideration of hemoptysis; and, as Dr. Bennett has also entered on this subject, we shall endeavour to contrast their observations. Dr. Thompson justly considers hemoptysis as a very frequent, as well as "the most significant of any single symptom of phthisis," occurring in seventy-three per cent. of the cases admitted into hospital, and again refutes a supposition which we had considered as obsolete, viz., that hemoptysis is the cause of tubercle, and not the consequence of the phthisical condition. Regarding the cause of this symptom as compression or obliteration of the pulmonary veins by tuberculous deposit, which occasions an exudation of blood into the neighbouring bronchi, moderate hemoptysis is considered by Dr. Thompson rather as beneficial than alarming, since it prevents the stagnation of unhealthy blood, and thus tends to oppose the progress of tubercular disease, a supposition apparently warranted by the fact, that, however increased local irritation may be manifest previous to or pending the hemorrhage, subsequently, a period of comparative quiet and temporary suspension of prominent symptoms not unfrequently follows. This explanation (if correct) could only apply to an advanced stage of the disease; since, as Andral has pointed out, hemoptysis frequently precedes the tubercular deposit, or is at least manifest at such a period of its development as precludes the possibility of its resulting from the mechanical action to which Dr. Thompson attaches so much importance. Be this as it may, the practical deduction from the observation of facts is, that undue haste to arrest hemoptysis should be deprecated, and that, when treated, it should be by producing determination to other organs, rather than by employing direct astringents. When the hemoptysis is considerable, if it be of an active character, as indicated by full hard pulse, heat, and oppression under the sternum, and heaving of the diaphragm, cupping, or even bleeding may be requisite; in which suggestion of Dr. Thompson many eminent authorities agree[a]. Dr. Stokes[b], amongst others, considers a single moderate bleeding, followed by the local application of leeches, as the best means, which the experience of a great number of cases had supplied, for the controlling of this symptom. On this point, however, Dr. Bennett thus writes:—

[a] See our present Series, vol. ix. p. 355.
[b] Stokes on Diseases of Chest, p. 445.

"I consider that there is no fact better established in practical medicine than that a considerable amount of relief, consisting of less local pain, a more free respiration, and diminished febrile action, may frequently be seen to follow the use of moderate, general, or local bleeding. Indeed, the benefit is sometimes so marked as to induce their frequent repetition. But every one of the cases I have seen so treated have [has] terminated fatally."

This is a point respecting which, we conceive, it would be folly to fix an absolute rule, for all practical physicians, however they may agree with the theory of Dr. Bennett's views, must have met cases in which the serious question of life and death lay in the balance between the possibility of arresting an immediately fatal bleeding, and the probability of confirming the condition which had originated, or was associated with it. If we follow those directions which Dr. Thompson's large experience dictates, according to Dr. Bennett we weaken the powers of the economy, check the cell development in the coagulated exudation, delay the transformation through which it must pass before it can be absorbed, and thus lend additional stability to the disease it is our object to cure.

Dr. Thompson, if he but partially treats on this vitally important symptom, seeks not to mystify us, for he distinctly commits himself to specific statements, advocating in acute attacks the active treatment we have mentioned, and in those of a less formidable nature, the employment of anti-congestive and astringent remedies. Dr. Bennett, when, in his third chapter, disposing of this part of his subject in seventeen lines, while advising perfect quiet, and the avoidance of every kind of excitement, bodily and mental, adds: "Astringents have been recommended, especially acetate of lead and opium; but how these remedies can operate, I am at a loss to understand; and I have never seen a case in which their administration was unequivocally useful." Our experience must have been singularly fortunate, for we have not the slightest doubt of having met with many cases, in which, were it not for the employment of such remedies, there is every reason to believe fatal consequences must have ensued, that is, if we are at liberty to associate as cause and effect the administration of particular medicines, and the subsidence of those certain symptoms which it was intended by their exhibition to remove. Dr. Bennett should have left us wholly in the dark respecting the means whereby we might meet this symptom, had he not in page 71, when decrying depletion, as we have quoted, advised "the husbanding the patient's resources during the exacerbations and fever; simply favouring excretion by means of antimonials; then, on

their subsidence, once again cautiously administering nutritives in a manner we shall subsequently discuss. We wonder if Dr. Bennett has ever met with cases in which the exhibition of antimonials failed to fulfil those expectations, and the acute symptoms did not prove so amenable? After this doubt and difficulty on his part respecting the *rationale* of the action of astringents, as also his disapproval of the detraction of blood, we find in his notice of the chronic form of the disease, that "a seton or issue, a succession of blisters, tartar emetic ointment, and croton oil, are all beneficial, and may be used according to circumstances," as tending to favour absorption of the exudation already poured out. We are, however, at the same time again informed:—

"The application of leeches should be avoided, as it is not easy to see how abstracting a few ounces of blood from the thoracic integuments, which are furnished with blood from the mammary and intercostal arteries, can operate upon such vascular organs as the lungs, receiving their blood entirely from the pulmonary and bronchial arteries."

To this we would ask in reply—Is a remedy to be despised because we cannot explain its action? How does this topical counter-irritation act? How does it happen that the application of a seton or issue, a succession of blisters, tartar emetic ointment, and croton oil, are all beneficial? By what means is it, that an impression is thus made on organs having not only a distinct circulation, but inclosed by arches of bone, and invested by separate membranes?

"It is true," writes Dr. Bennett, "that a few leeches applied under the clavicle *often relieve certain symptoms;* but I have never been able to satisfy myself that they have ever been of *permanent* benefit; and *although I am far from saying that they are always injurious*, I have *occasionally* thought that the exposure of the person, the warm fomentations, and unpleasant trickling of blood, have increased rather than diminished the uneasiness of the patient."

What are we to infer from this very clear and consistent statement? That the relief of certain symptoms is to be thought lightly of, if not repudiated, because it is not of permanent benefit, even though it be not always of ultimate injury. That the administration of particular remedies is to be abandoned if we are unable to speak with confidence of the precise part they fulfil in the curative process. Happily for ourselves, we believe it is permitted that great practical good can be accomplished by the employment of means whose exact agency we are unable to explain. Were it otherwise, those observations

of Dr. Bennett should lead us to reject many of our most valuable agents; and since, in a number of painful and distressing affections, permanent benefit cannot be anticipated from the resources of our art, we should, did we act according to our interpretation of the foregoing, watch their progress with resignation, and do—nothing.

For our own part we may observe, in common with many experience has impressed us with this truth,—in divesting disease of its contingent suffering we not only delay the necessarily fatal issue, but worthily conduce to the honour of medicine by soothing and tranquillizing the patient.

In passive hemoptysis Dr. Thompson more particularly advocates the use of direct astringents, and having enumerated many, speaks of turpentine as "one of the most certain and suitable remedies in a majority of instances." The value of this medicine in "purpura hemorrhagica" was many years since impressed on the notice of the profession by Dr. Neligan[a], who more recently, in an essay in our pages on Hemorrhages[b], has afforded convincing proof of the advantage to be derived from the administration of those remedies, the secret of whose action is so inexplicable to Dr. Bennett.

Unlike Dr. Thompson, Dr. Bennett "begins at the beginning," and occupies the first chapter of his work by the microscopical examination of tubercle. Having detailed the appearance of tubercle-corpuscles, he declares his dissent from the assertions of Gulliver and Vogel as regards the presence of nucleated cells in tubercular matter, thus coinciding with the opinion of Lebert. Tubercles are regarded by Dr. Bennett as independent nuclei, formed slowly, having no tendency to produce cells before they break down into a molecular matter; Schroeder Van der Kolk also supposes them to be nuclei, but considers that they result from the disintegration of epithelial cells in the ultimate bronchi and air-vesicles, a view which seems to Dr. Bennett negatived by the fact that they occur in textures destitute of epithelium, as in the substance of the brain.

Tubercle has been made the subject of special analysis by so many high authorities, and such discrepancy of opinion has resulted from the investigation of those of equal reputation, that the conclusion which forces itself on the rational mind is,—exactness in the data on which their judgment has been founded has not been satisfactorily arrived at. The revelations of the

[a] Dublin Journal of Medical Science, First Series, vol. xxviii. p. 189.
[b] Dublin Quarterly Journal of Medical Science, vol. ix. p. 347.

microscope have determined certain appearances, but not those causes which conduce to them; it is in their estimation of the latter that those differences of opinion appear to chiefly rest. We allow there is nothing more fascinating than a successful theory by which to explain vital actions, yet at the same time we have no hesitation in affirming, that now more than ever is the physician required to be cautious in arriving at a positive conclusion. Histology and animal chemistry, in the ultimate analysis of morbid growths, have sought to explain the mystery of disease, and to solve the problem of death; that they have accomplished much, humanity with gratitude acknowledges; yet that very much remains to be done is too plainly demonstrated in the fatality still attendant on those diseases whose pathology they may have best contributed to establish.

The second section of this chapter is devoted to those considerations of the nature of tubercle which its histology suggests. "It can scarcely be doubted," writes Dr. Bennett, "that it is an exudation from the liquor sanguinis, but one which presents marked differences from the simple or inflammatory exudation, on the one hand, and the cancerous exudation on the other." For determining the position in the vital scale which tubercle should occupy, we read:

> "Taking, then, the products of simple inflammation (say pus) as a standard, we cannot fail to remark, that whilst the cell-development of tubercle is below, that of cancer is above, this standard. Of the three kinds of exudation, tubercle is the lowest, and cancer the highest, in the scale."

This comparison of the *cell-development* of tubercle with that of those other products appears to us as being rather at variance with the previous assertion, that the tubercular nuclei "had no tendency to produce cells previous to breaking down into a molecular matter."

Every kind of reasoning, writes Dr. Bennett, must lead to the conclusion, that these different changes and effects depend "on the inherent composition or constitution of the exudation itself. Now as the blood is dependent for its constitution on the results of the primary digestion in the alimentary canal on the one hand, and the secondary digestion in the tissues on the other, it must be evident to every physiologist that if it be the constitution of the blood which determines that of the exudation, the causes which produce this must be sought in those circumstances which operate on the composition of the former fluid." In other words, we may infer that the stomach and in-

testinal tube is the "fons et origo mali," which seems to us to be rather a "post hoc" style of reasoning.

We really do not wonder at the different members having in olden time rebelled against this organ, for, not content with being itself perpetually out of order, we have it here declared that, quite independent of its own private and particular disarrangements, it is also the cause of one-sixth of the deaths which annually occur,—that is, if we receive without question the theory or views thus set forward.

"The views now advanced," observes this author, "dispose of the disputes formerly so prevalent among pathologists as to the inflammatory or non-inflammatory nature of tubercle." We really did believe, to use the author's own words, to "any well-informed medical practitioner" little doubt on this point remained, and that it was generally admitted whatever influence the occurrence of inflammation might exercise in determining the deposit of tubercles, yet their development argued a condition in which the vital powers were below par, and opposed to the occurrence of inflammation, receiving the term in its ordinary signification.

As regards the condition of the system in which tubercle occurs, Dr. Graves, when thoracic diseases were much less understood than now, thus wrote:—"It is, I believe, a generally received opinion, that tubercles, by producing inflammation and suppuration, are the cause of phthisis. This I doubt, or even deny. I look on tubercular development and consumption as the consequences of that particular state of constitution which occasions what is falsely termed tubercular inflammation[a]." "Every form of consumption which has hitherto come under our notice is referable to one common origin, and this is that debilitated state of constitution which has been termed the scrofulous habit. One of the first tendencies of this habit is to the formation of tissues of an inferior degree of animalization, among which I class tubercles[b]." And again, when speaking of tubercles, the same distinguished writer observes, p. 93:—"I consider them as productions incapable of developing the phenomena of inflammation." "It will be seen from the sequel," writes Hasse, "that the production of tubercle is *not* dependent upon accidental conditions,—upon some occasional cause possible under all circumstances, as, for example, inflammation[c]." Louis, we thought, had confuted by numerical evidence the inflammatory origin of phthisis; while Dr. Cars-

[a] *Op. cit.*, vol. ii. p. 89. [b] *Op. cit.* p. 90.
[c] Hasse's Pathological Anatomy, p. 316.

well, when speaking of the fact that inflammation is not necessarily followed by the development of tubercle, as also that tubercles are found in organs whose functions have never been deranged, adds:—"Under such circumstances it would be absurd to ascribe the origin of tuberculous matter to inflammation[a]." Dr. Ancell, in his splendid work on this subject, has furnished ample details to confirm the foregoing opinions. While, therefore, we deny altogether the inflammatory nature of tubercles, which, in spite of this additional but by no means novel conclusion of Dr. Bennett, is still advocated by Schroeder vander Kolk, we must at the same time be careful not to lose sight of the extraordinary influence inflammation exercises in promoting their local development, the manner of which, as well as the reason why the lungs are the organs most frequently implicated, we conceive Dr. Graves has satisfactorily set forth. Yet no allusion is made to his writings, which, considering the close similarity to his views, those now put forward by Dr. Bennett present, we might reasonably have expected.

The nature of that change in the blood which communicates to the exudations from it those peculiar characters we denominate tubercular, is, according to Dr. Bennett, chiefly owing to the deficient assimilation of the nitrogenized particles of the food; while, consequent on an excess of acidity which exists in the alimentary canal, its albuminous constituents are rendered easily soluble, and at the same time the proper alkaline secretions, from their neutralization, are incapable of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system as will render them easily assimilable. The result of this is, an excess of albumen, and a deficiency of fatty matter in the blood, eventuating in exudations of an albuminous kind which are tubercle. The chief, we may say the necessary agent for the production of this chain of phenomena is the excess of acidity in the alimentary canal. In reply to a French critic who questioned such a simple solution of vital actions, and asked for the proof, Dr. Bennett observes:—"The proof, I thought, consisted in the *frequent* sour taste and acid eructations in phthisical cases;" and adds, that since this question, he has satisfied himself that "a marked difference exists in the amount of intestinal acidity, between the phthisical body and that affected with other lesions." Now, how many individuals are there who for years suffer most painfully from excess of

[a] Article, Tubercle, Encyc. Pract. Med.

acidity in the primæ viæ, and yet never show the slightest tendency to tuberculous disease? How many are there who undergo extreme emaciation from this cause, and never manifest the least indication of phthisis? There is no doubt "that," to use the words of Dr. Glover, "this is an easy explanation of great difficulties," and its simplicity must not rise in judgment against its adoption. But what is the determining power which ultimately so disposes of this fluid? We believe that this excess of acidity in the alimentary canal is the consequence and not the cause of tubercle; and though we seek not to deny that, as in other affections, a lesion arising in a disease may in its turn become an additional source by which it can be maintained, yet we are satisfied, that, in treating affections by the removal of their self-engendered causes, we make but one, it may be a most important, step towards their cure. Has not Dr. Bennett seen cases of tubercle in which wonderfully little emaciation was present, and cases of acute phthisis in which the mechanical, chemical, physical, and vital processes seemed to be simultaneously affected for the production of the disease? We do not seek to depreciate Dr. Bennett's labours as regards this ingenious theory, but, inasmuch as the operations of life seem at times wholly to disregard the regulations of matter, we conceive the vital assimilative force which exercises the supreme direction has not, in the primary changes which it undergoes, been sufficiently dwelt on.

The third section of this chapter commences by detailing the manner in which tubercular matter is deposited, and the mode by which tubercular ulcers heal, in which the views of the author confirm those already before the profession from other sources. To prove that tubercles may be arrested at an early period of their development when they are limited in extent, as also that cavities of a large size may heal, and leave even in the midst of a healthy lung unequivocal traces of their tubercular origin, a case is detailed which is considered as sufficient to convince the most sceptical. A man named John Keith, aged 50, died one hour after his admission into hospital: on examination after death, the apex of his right lung presented a remarkable cicatrix, varying from one to three fourths of an inch in breadth, and measuring about three inches in length. The pulmonary substance of both lungs was healthy, and each contained from five to seven encysted cretaceous concretions. The history of this case depends wholly on the recollection of a very respectable-looking and intelligent man, who nearly thirty years previously believed the deceased to have laboured under all the symptoms of a

deep decline, when his life was despaired of. A second case illustrates the advantage which results from the use of cod-liver oil, seen in the partial healing and contraction of two cavities in the left lung, while in the right lung cretaceous concretions, puckering, and incipient emphysema, were present. A third case is detailed,—an interesting example of the cadaveric appearances of a scrofulous lung, in which numerous cavities lined by fibrous membranes seemed to be continuous with the bronchi. From this case it is presumed that "cirrhosis" of the lung, so well described by Dr. Corrigan, is the result of tubercular excavations compressing the pulmonary structure,—a proposition the consideration of which the space at our disposal does not permit us to enter on. Reviewing these cases, Dr. Bennett thus proceeds:—

"What has been now stated must, I think, show that the arrestment of tubercular ulceration may take place in three ways:—first, by the gradual transformation of the exudation into cretaceous and calcareous concretions; second, by expectoration and absorption of the exudation, the collapse of the ulcerated walls, and formation of a cicatrix; third, by the ulcerated walls becoming covered with a smooth membrane, remaining open, and constituting chronic cavities, which have occasionally been mistaken for dilated bronchi."

Enlarging further on the curability of this disease, Dr. Bennett writes:—

"So deeply rooted, however, has been the opinion of the necessarily fatal nature of this disease, that the generality of practitioners have concluded that *because* phthisical cases recovered, that the disease was *not* phthisis; that is, they have rather distrusted their own diagnosis than ventured to oppose a dogma of general belief."

In reference to the foregoing, we may be permitted to observe, great caution must be exercised in determining the history of a case by a simple post-mortem appearance. That cavities in the lung will, under the most unfavourable circumstances, occasionally heal, Dr. Graves[a] affords six examples to prove. The means which nature adopts for such a purpose Dr. Ancell has much more fully stated. We quote the words of his reviewer[b] in our pages.

"The modes of spontaneous cure he (Mr. Ancell) enumerates are as follows:—Absorption; atrophy; in the case of miliary tubercles; cretifications, most frequent; sequestration, by means of an enveloping cyst; cicatrization, the cavity becoming fistulous; and the cavity becoming filled with a

[a] *Op. cit.*, vol. ii. p. 44. [b] Vol. xv. p. 117.

fibro-cartilaginous laminar deposit—with condensed cellular tissue—with cretaceous substance; and, lastly, transformation of tubercle into melanotic matter."

Dr. Williams, in a highly useful and perfectly impartial paper[a], has stated his experience of 400 cases, and set forward the practical advantages resulting from the use of the remedy Dr. Bennett so justly advocates. If, notwithstanding such cases and assurances, "the generality of practitioners" with which Dr. Bennett has been acquainted, continue sceptical (and we presume the author here speaks from his personal knowledge alone), we may pause to inquire, what is the use of medical writing?

To prove that imperfect digestion and assimilation is the true origin of phthisis, the fact is adduced, that neither scrofula nor tubercle originates amongst able-bodied men in the armies or fleets, whatever privations they may be exposed to,—that is, we presume, while they continue able-bodied. Contrasted with these fortunate men, others who follow sedentary employments in hospitals, factories, and such places, are stated to suffer in proportion; while in the higher classes, these diseases result from imperfect and insufficient lactation during infancy, or the irregular diet caused by carelessness or over-indulgence. It is well to have all uncertainty respecting scrofula and tubercle for ever set at rest by the following assurance:—

"No doubt, they may frequently be observed in persons whose parents or relatives have been similarly affected."

We fully accord to this admission. Dr. Bennett proceeds:—

"From facts of this kind it has been supposed that hereditary predisposition, a vitiated atmosphere, changeable temperature, certain occupations, humidity, particular localities, absence of light, and so on, predispose to phthisis."

The "so on" may, we presume, include deficiency of food and want of clothes. Now, the phrase "has been supposed" would lead us to infer, that for the future they are not to be so regarded. We fear that on this point we again so adhere to our old-fashioned notions, that we shall be classed amongst those hard to be convinced practitioners, with whom Dr. Bennett is already familiar, more particularly since Dr. Thompson observes: "There is no disease respecting which hereditary influence is better established," and subsequently corroborates by very con-

[a] London Journal of Medicine, January, 1849.

vincing proofs, the opinions of many writers, who have satisfied us that those causes which have been supposed as predisposing to this disease really are so. That Dr. Bennett considers they occasionally conduce to such an end, we infer from the following passage:—

"When they so operate, however, they invariably produce, in the first place, more or less disorder of the nutritive functions, and are associated with dyspepsia, or other signs of mal-assimilation of food."

To prove this, four examples out of many are brought forward:—The first, an unhappy countrywoman, aged 17, went to work as a field labourer in Scotland. In Ireland she lived on potatos and sweet milk, and once a week had fish or a little meat. The quantity was abundant. (This is of itself enough to render hers a most uncommon case.) In Scotland she did not fare so well, for there her diet was coarse oatmeal porridge and dry bread, with buttermilk, not tasting fish or meat once a month. Instead of returning home to the land of fish and meat, she bore up against the change for four years, and at the age of 21, with all the symptoms and signs of advanced phthisis, entered the Royal Infirmary. The next example is that of a strong, young thief, who, being imprisoned for three months, confined in a damp stone cell, and living on the ordinary prison fare (a Scotch prison), insensibly declines in his health. On being liberated, having no employment, and as a consequence, we presume, being occasionally hungry, he finds that his strength had diminished; he also becomes the victim of phthisis. The next case is that of a woman, aged 26 (of whose previous history we are not informed); she applies at the Infirmary, and is found to be labouring under phthisis. Her son, aged six years, is a perfect picture of health; and an infant at the breast, seven months old, is also quite healthy. The mother dies a year after; the children continue well, for the father having good wages was enabled to give them plenty of food. To complete these examples, the case of a young lady is stated. She was induced to leave the country, and to take charge of her brother's house in town. Deprivation of exercise, daily anxiety, and city air, induce dyspepsia, accompanied by cough and other symptoms of phthisis. She returns to the country, and regains her health. The author observes:—

"It is unnecessary to multiply cases of this description. The more they are examined into, the more do I feel persuaded it will appear that the causes of phthisis are not hereditary influences, vi-

tiated atmosphere, &c. &c., although *these may co-operate*, but almost invariably such circumstances as induced impoverished nutrition, resulting from an improper quantity, quality, or assimilation of food."

Surely Dr. Bennett does not mean to say that had he four thousand, rather than four such cases, they would afford him just ground for such an assertion, which, we do not hesitate to affirm, his own examples are far too imperfect to warrant. Nothing is stated of the Irish girl's hereditary predisposition, or the influence of those many causes conducing to the devolopment of the disease. We have no allusion to the mental and bodily depression of the starving vagrant lad. The fact of children of consumptives presenting the appearance of rude health argues nothing of their immunity from the disease. While so many causes conspired, in the fourth instance, to break up the young lady's health, we are not warranted in attaching supreme importance to any one in particular. That in many diseases, but more especially in phthisis, predisposing causes may, from their very continuance, become disposing, we have no doubt. That phthisical dyspepsia is the result, and not the cause, of the tuberculous condition, we consider the effects of treatment as well as the observation of the disease establishes. And though Sir James Clarke may have regarded derangement of the *primæ viæ* as amongst the most prominent of the premonitory symptoms of this affection,—the truth of which observation we seek not to deny,—we still believe that consumptive dyspepsia is a disease *per se*, which as certainly indicates the pre-existing, fully-established phthisical condition, manifested through deranged function of the abdominal viscera, as does cough that secondary condition of the lung which marks the progress of local organic change.

The second chapter of Dr. Bennett's work is headed "General treatment of pulmonary tuberculosis." Its success is stated to be proportionate to our power:—1st. Of improving the faulty nutrition, which is the cause of the exudation assuming a tubercular character; second, of favouring absorption of the exudation already poured out; and third, of preventing the recurrence of fresh exudations by careful attention to hygienic regulations. In the short space of twenty pages which this chapter occupies, these very important topics are discussed. Under the first indication, to prove that a mere increase in the amount or quality of the food often cause a larger quantity of fatty matter to be assimilated, allusion is made to the case of Keith, the man who died an hour after his admission into the infirmary. In the history of Keith's case there is nothing

to show that a greater quantity, or better quality, of food was present, since at the time he laboured under the symptoms of decline, he was lost sight of by his friends, who afterwards ascertained that he had become a parish schoolmaster in the West of Scotland, and that his health had been re-established; but whether he was appointed to this situation after the re-establishment of his health, of the period that elapsed between his disappearance and this appointment, or what occurred during his progress to the West,—of all this we are not informed; yet it is these circumstances which lend any value to the case.

Cod-liver oil is the remedy for this first indication; but we reserve our remarks on its use until we contrast Dr. Bennett's and Dr. Thompson's observations thereon.

The means set forward for carrying out the second indication we have already reviewed in our observations on hemoptysis. Under the third indication the question of climate is that mainly discussed. We are here favoured with a reprint of the author's review of Dr. Burgess on the Climate of Italy, taken from the thirty-fourth number of the "Monthly Journal of Medical Science." In this we find the following observations, p. 73:—

"As a general rule, every local practitioner speaks highly of the superior merits of his own place of residence. He is ready to give you a list of the most extraordinary recoveries. He instances the cases of Lord this and Lady that, who, on their arrival, were in the worst possible condition, and who, during their sojourn in his locality, even surprised *him* by their rapid recovery. In short, when listening to those accounts, we feel astonished that any case of phthisis should die, did not all such practitioners, in reply to a straightforward question, acknowledge that deaths, notwithstanding, were very common, and that, after all, those remarkable cases were the exception, and not the rule."

Dr. Bennett's experience of his professional brethren must have been most unfortunate. For our own part we protest against this perpetuation of scandal, for, while physicians occupy the position in society of educated gentlemen, we consider it is neither generous nor just that they should, by so sweeping an assertion, be set down as so many equivocators, on whom the public can scarcely be expected to repose any confidence, since, by a professional brother, they are thus stigmatized, and declared to be so indifferent to truth.

The third chapter in Dr. Bennett's work purports to be devoted to a consideration of the special treatment of this disease. The important topics of cough and expectoration, loss of appetite and anorexia nausea and vomiting, diarrhœa,

hemoptysis, sweating, febrile symptoms, debility, with despondency and anxiety, are each considered under distinct heads; and the whole included within the space of not quite *seven pages*, which, of itself, sufficiently indicates the minuteness with which they are investigated, as well as the care that has been bestowed on their discussion.

We are told—"The accumulation of the sputum in the bronchial tubes is an exciter of cough; and hence the latter symptom is often best combated by those means which diminish the amount of sputum. When, on the other hand, the cough is dry, those remedies should be used which diminish the sensibility of the nerves." It becomes, however, a struggle between the stomach and lungs, "since nauseating mixtures are the worst treatment that can be employed;" for we read—"There is no point which experience has rendered me more certain of than that, however these symptoms may be palliated by cough and anodyne remedies, the stomach is thereby rendered intolerant of food, and the curative tendency of the disease impeded." Cod-liver oil and good nourishment are the means to be employed: if they succeed, the cough and expectoration spontaneously cease; but if they should fail, why then the author gives no directions!

The other sections are much on a par with this. For loss of appetite and anorexia a stimulant stomachic mixture and nicely cooked food is to be tried. The nausea and vomiting, it is possible, may depend on the medicaments or cough. If on the former, they are to be suspended; if on the latter, "those remedies advised for that symptom should be given:" yet, on carefully reading the thirty-five lines in which that symptom is treated of, we are still unable to discover what the remedy alluded to is, unless it be that when the cough is accompanied by expectoration we are to give cod-liver oil,—in our mind not the best means of checking nausea,—or, should the cough be dry, to employ counter-irritation in the manner already alluded to. Diarrhœa and hemoptysis each receive seventeen lines. The first is regarded as a very common symptom throughout the whole progress of phthisis; astringents are recommended for its cure. Of hemoptysis we have already written. Sweating is considered as a symptom of weakness, and therefore as a common though by no means a special one in phthisis. Febrile symptoms, debility, and despondency, are set down as not unfrequent accompaniments, which it is impossible for the careful practitioner to avoid noticing.

This chapter concludes with the detail of ten cases, some of which had occurred in the author's practice, and others

which came under his passing observation: some noted with great, others with less accuracy; some in which the conclusions were satisfactorily established; others in which the terminations were unknown. All, however, conspire to the one end,—to establish the value of cod-liver oil as a remedy, and would, were such at the present day required, afford to the profession great confidence in its use. These examples are brought forward to show the other circumstances it will be requisite to attend to, with a view of rendering cod-liver oil of permanent advantage.

"It is only by thus studying individual examples of the disease, and observing the numerous and varied combinations of symptoms and indications that each presents, that the special treatment of phthisis, and the difficulties the practitioner has to combat, can in any way be understood."

We commenced our observations by a proposition somewhat similar, and with this corroborating quotation from Dr. Bennett's book, we again return to our notice of that of Dr. Thompson.

Dr. Thompson's third lecture is specially devoted to the subject of phthisical expectoration; where its varieties in character, and the stages of the disease they indicate, are described. He considers the expectoration of bronchial polypi, or fibrinous moulds, as of rather rare occurrence, which led us to anticipate that the writings of Dublin physicians on this subject would at least have been recognised. "I do not think," observes Dr. Thompson, "that these bronchial concretions have any relation to phthisis, or that hemoptysis is a necessary element." On this point, Dr. Black, while giving it as his opinion that "plastic bronchitis may or may not be connected with a particular diathesis[a]," at the same time describes a variety occurring in phthisis, and points out the means of diagnosis between it and that which results from simple bronchitis. It is therefore not requisite that we further investigate its association with hemoptysis, for unless it be proved that this symptom is essential for their formation, the fact of their being present where no hemoptysis has taken place argues nothing against the greater tendency to such, which the occurrence of hemorrhage engenders.

In Lecture IV. Dr. Thompson offers many practical observations respecting the pulse of phthisical patients, and concludes that the presence of tubercle modifies its usual sensitiveness to change of posture, in a manner analogous to that de-

[a] Black, Pathology of the Bronchio-Mucous Membrane, p. 70.

scribed by Dr. Graves, who observed a similar phenomenon to accompany certain conditions of the heart. Lectures V. and VI. are occupied by the consideration of cod-liver oil and other oils, to which we shall presently refer. Lecture VII. treats of the condition of the urine. Lecture VIII. of the early stethoscopic signs of consumption, in which prolongation of the expiratory murmur is particularly dwelt on; while in Lecture IX. the occurrence of interrupted, jerking, or wavy inspiration, a modification of the "inspiration entrecoupée" of Laennec, "inspiration saccadée" of Fournet; or "jerking inspiration" of some English writers, is regarded by Dr. Thompson as distinctly demonstrative of the commencement of this disease. These several lectures offer to the student many practical suggestions for the recognition of morbid action, while the analytical and statistical Tables they contain prove that considerable care has been expended on their preparation, and lead us to believe that observation rather than theory has dictated their contents In Lecture X. Dr. Thompson brings prominently under our notice the consideration of what he terms the "gingival margin," or a mark at the reflected edge of the gums, usually deeper in colour than the adjoining surface, and producing a festooned appearance by the accuracy with which it corresponds with the curve of the gingival border, which mark, in some patients, is a mere streak; in others, a margin sometimes more than a line in breadth. In the most decided cases this margin is of a vermilion tint, inclining to lake. A coloured engraving of the appearance is annexed to the work, which at once impresses us with the characters it is intended to convey. Dr. Thompson is "satisfied of its existence in a very large proportion of cases" of phthisis. It is more frequently witnessed in men, and its absence amongst such is therefore a favourable indication, while its presence in women is almost conclusive evidence of the tubercular element in the blood.

The hypothesis Dr. Thompson advances in explanation of this appearance relates partly to matter of fact, partly to matter of opinion, the matter of fact being:—

> "That the margin has been found broadest and deepest in tint, and most extended as respects the number of teeth encircled, in cases where diarrhœa or other symptoms indicated the existence of a state of erethism of the intestinal mucous membrane."

The matter of opinion resting in the views of some eminent pathologists, who believe that blood affected with tuberculosis has a peculiar affinity for oxygen. Now, did this sign depend on secondary congestion at the reflected edges of the gums, it

would be of little value, as under such circumstances the nature of the case could scarcely be doubted, while regarding it as a proof of abnormal tubercular susceptibility of the circulating fluid to atmospheric influence, its presence will at least lead to a closer scrutiny of those other indications which coincidently mark the earliest stages of this disease.

In the advantages to be derived from the administration of cod-liver oil both authors agree. Dr. Thompson considers that one mode of its action is through an influence exerted on the proportion of red corpuscles. Dr. Bennett, that it supplies fatty particles to combine with the excess of albumen which exists in the nutritive chyme, and so affords materials for the formation of healthy chyle, whence the blood is formed. If we limit the acknowledged efficacy of this medicine to any one of its constituents, an inquiry arises as to whether this exhibition of this constituent, when isolated, is attended with equal benefit. If it be so, animal oils in general should answer equally well, and Dr. Thomson leads us to believe as much, since he has found neat's-foot oil to accomplish all that could be desired with some; and to agree better with others, than the remedy of which Dr. Bennett thus writes: "The universal result of experience is, that no substance hitherto known is so easily tolerated by the stomach, and is of such general application as an analeptic in tubercular diseases." Dr. Thompson is of opinion that there is no essential difference of virtue in any of the fish oils; that neat's-foot oil, differing only in aptitude for assimilation, is to be regarded not so much as an equivalent as a rival to the cod-liver oil; while in another passage he informs us:—

"Amongst the patients to whom cocoa-nut oil was given, there were some instances of arrested phthisis, as decided as any I have been accustomed to attribute to the use of cod-liver oil, over which it possesses advantages in reference to economy and palatableness."

This statement of the efficacy of cocoa-nut oil is, it appears, founded on but a limited experience, and we shall anxiously look forward to the results of additional observation, inasmuch as the question it involves is one of the very deepest practical importance and interest.

We have already entered so closely into a detail of the separate views of both authors, that our remarks on the present subject must be brief, more particularly as our pages[a] contain a full review of the knowledge we possess on the administration of this remedy.

[a] Vol. ix., p. 412.

Admitting it as a fact that certain chemico-pathological conditions exist, indicating a particular constitutional tendency, and allowing that an agent capable of effecting particular changes is within our reach, a question arises as to whether we are warranted in asserting that we therefore possess a specific. Before we reply, it is essential we be fully competent to estimate those causes which may modify the action of this agent, as also that we truly weigh those means within our reach of directing their operations; for, wanting this, in the living laboratory of the human body, we cannot satisfy ourselves of uniformity in our experiments.

Tracing the history of disease, we become fully impressed with the apparent anomaly, that many remedial agents, the nature of whose action we are least able to explain, have continued to occupy the foremost rank in our curative means, as being those in which our greatest confidence is placed. The reason of this we conceive to rest in the closer study of the vital rather than physical phenomena which the application of such remedies demands. Much consideration has led us to believe it is a narrow and restricted view in medicine, which finds in every disease a chemical or mechanical change adequate for its explanation, to the exclusion of those mysterious influences which conduce to their formation, leaving them frequently as the known effect of unknown causes, or the single result of many causes. May we not example the estimation in which bark, mercury, arsenic, and other medicines are held, and ask are they the less esteemed because the *rationale* of the specific influence which they exercise is unknown?

Dr. Thompson appears to us, in his exhibition of cod-liver oil, to have been judiciously regulated by coincident circumstances, and to have derived the greatest benefit from the employment of collateral means. His observations and directions respecting its use may, for practical truth, be depended on.

To Dr. Bennett we accord the fullest credit of having introduced and successfully advocated a most—we might add *the most*—valuable remedy. It has on this account been to us a source of pain and disappointment that a volume bearing his signature, and purporting to treat of a disease he is so competent to have entered on both fully and well, should have proved so imperfect and unsatisfactory, affording the student but little guide in those concomitant difficulties which are so embarrassing and which so perpetually arise, and at best but confirming facts of which we cannot believe any reasonable physician entertained a doubt. The truth is, Mr. Ancell's recent volume, containing a great mass of facts, clearly and justly rea-

soned on, led us to anticipate a work of a different class; for, in the existing state of medical science, the profession has a right to demand that its literature be respected, and that, in treating of a subject to which such clear, impartial, and truly practical attention has been given by many authors, the researches of contemporaneous labourers should be at least acknowledged.

An Expository Lexicon of the Terms, Ancient and Modern, in Medical and General Science ; including a Complete Medical and Medico-Legal Vocabulary, and presenting the correct Pronunciation, Derivation, Definition, and Application of the Names, Analogues, Synonymes, and Phrases (in English, Latin, Greek, French, and German), connected with Medicine, and employed in Anatomy, Astronomy, Botany, Chemistry, &c. By R. G. Mayne, M. D., Surgeon to the Leeds Lock Hospital. London: Churchill. 1853. Part I. 8vo, pp. 152.

We have transcribed the greater part of the lengthy title prefixed to Dr. Mayne's work, because by so doing we shall best acquaint our readers with the design of his laborious undertaking. It is evident that such a volume as he promises must, if well done, be one of vast utility and importance to all engaged in medical literature, whether as readers or as writers; and, so far as the part at present published goes, it appears to us to be most ably and correctly compiled. Some idea of its copiousness may be formed when we state that, according to a rough calculation we have made, the letter "A" alone contains about 3000 headings, and the explanations appended to each term are not mere definitions, but in most instances include much descriptive and valuable information. It is proposed to complete the work in six quarterly parts, to be published at an extremely moderate price.

Plates of the Brain, in Explanation of the Physical Faculties of the Nervous System. By Joseph Swan. London: Longmans. 1853. 4to, pp. 67, and 22 plates.

The difficulty of ascertaining the proper structure of many parts of the cerebro-spinal axis, and the obscurity which still attends several of its functions, render every attempt to throw

additional light on this intricate subject interesting to the philosophical anatomist and pathologist.

The principal object of Mr. Swan's work has been the explanation of those parts which minister to what he designates as the leading physical faculties of the nervous system; the faculties, namely, of sensation, and of voluntary and involuntary motion. The arrangements found in man are stated to have been confirmed by the examination of corresponding parts in several animals, and their physiological bearing to have been substantiated by defining particularly the origins of nerves, and by tracing their distribution in organs whose functions are familiarily known. His investigations point out an especial centre for each leading faculty, and appropriate convolutions in a particular locality, and show that one-half of the larger portion of the fifth nerve belongs to the sensitive faculty, and the other half to the involuntary; and that the glosso-pharyngeal nerve and par vagum belong to the involuntary.

In his dissections Mr. Swan has employed brains, a large portion of the interior of which was exposed by removal of the exterior parts, and which were then hardened by immersion in alcohol for two or more days, according to the size of the part. By commencing early, the gray and white substances could be distinguished, and the gray could be removed for showing successfully the course of the white fibres. A large spear-pointed couching needle, rather blunt, was found to be the most convenient instrument, for by pressing it gently on a part it made the course of the fibres apparent, and was also sufficient for removing the surrounding matter. A smaller couching needle, also blunt, was used in contracted cavities, and a sharper one when a clearer division was required. A scalpel, with a very thin blade, was found to make extensive sections more satisfactorily than an instrument of larger dimensions, and its thin handle with rounded corners proved very useful for separating the epithelium, and clearing surfaces of loose particles. The dissections are stated to have required much time and labour.

Of the gray particles Mr. Swan says, that—

"When separated from each other they appear globular or angular, and varying in size; they probably form separate organs, and are encircled by belts of fine filaments of pia mater, and are thus placed in open cells. They are copiously supplied with blood, and possess an exciting influence. Their molecular form allows them to be aggregated in larger or smaller quantities, but makes them low conductors of impulses.

"Recent medullary matter," he remarks, "is composed of slender, semi-transparent filaments, which communicate in forming

meshes. It is less copiously supplied with blood than the gray. It appears in points at its approach to the gray, and each point becomes connected with a congeries, and not with a single gray particle.

"One kind of matter would not suffice for the varied powers of the nervous centres. The gray might allow some communication of impulses between its particles, but they would be of a peculiar kind, and not proper for forming combinations with the organs of the body. White alone, on the contrary, would be so capable of impression, that, however it might be modified by intricately arranged fibres, it would not suffice for more than the very simple nervous system of the lowest animals. A primary or superior power was therefore required, as in the gray matter, and a secondary or conducting one, as in the white; both, however, being capable of forming combinations with each other; so that, by varied proportions and forms of arrangement, not only subordinate centres, but agreeable and proper means of communication for allowing a co-operation with the intellect, may be produced."

The latter part of the last sentence seems to us to be badly expressed, and its meaning obscure. Mr. Swan, in his description of the forms of the gray particles, omits mention of the caudate variety, which is found in some of the most important nervous centres. We are not sure that we understand exactly the meaning of the term "exciting influence" which Mr. Swan applies to the gray particles. We conceive that they, when combined with the white fibres so as to form nervous centres, are as frequently the recipients of impressions as the sources whence impressions emanate. Every act of sensation or perception by an individual implies that an influence has been communicated to the perceptive organ, inducing in it a peculiar condition, probably a state of excitement, which is by a general law associated with the fact of mental sensation or perception. In every case of simple reflex action the nervous centres, with which the afferent nerves communicate, are the recipients of the impressions conveyed by these nerves, and are caused by them to assume a condition which is attended with the propagation from those centres along the efferent nerves of other impressions calculated to produce suitable actions, muscular or others, in certain organs. We conceive, therefore, that the power of *being excited*, or an excitable power, if we may so call it, is as inherent a quality, and as important a one in the gray particles, or in those combinations of them with white fibres which form the nervous centres, as the "exciting influence," and that, in fact, the one is in most instances the attendant of the other.

Mr. Swan proceeds to say:—

"The convoluted surface of each hemisphere of the brain, composed of innumerable gray particles in a continuous stratum, seems qualified for containing a uniform agent, and constituting the sensory for the manifestation of intellect. Three distinct faculties are also perfected in the sensory, as the sensitive, the voluntary, and the involuntary. Each faculty is peculiarly constructed for the development of its powers, and for forming a proper connexion with the sensory and the organs of the body. Each hemisphere contains eminences for enlarging the power of the faculties, and for harmonizing some peculiar properties with the capacity of the intellect and the modified functions of the organs of the body. Tracts are required for connecting the sensory with the oblong and spinal medulla, and for forming combinations between different regions for complex purposes."

By the "convoluted surface" we suppose is meant the substance of the convolutions, as a surface seems ill qualified for containing an agent of any kind, whether uniform or otherwise; and we do not suppose that the alleged composition of this surface, "innumerable gray particles in a continuous stratum," is intended to exclude the innumerable portions of fibrous substance which form an essential part of its composition. We object to Mr. Swan's employment of the word "faculty," as designating an organ. Faculty means power, the function of an organ, but not the organ itself. When he says that each faculty is peculiarly constructed for the development of its powers, he might with equal propriety say that each power is peculiarly constructed for the development of its faculties. It is only in this new and improper acceptation of the word faculty, as the organ of a function, that the term "physical" can be intelligibly applied to the sensitive and voluntary faculties, unless by one who, denying or doubting the existence of a mental agent, is disposed to regard all the properties commonly called mental, as functions of the nervous system. Mr. Swan does not appear to hold this view, as he elsewhere speaks of the intellect as exercising an independent action.

Mr. Swan says,

"The surface of the brain is nearly smooth in the lower class of animals, and in some of the smaller examples of mammalia: in many of the largest of this class it has narrower and more numerous convolutions, and broader and fewer in others."

Mr. Swan thinks it probable

"That the gray matter of the broad kind, combined in a thick stratum, has higher powers than an equal quantity of the thinner

of the narrow spread over a large surface. The thicker the stratum of gray matter covering them, the more copious are their accompanying capillary vessels, and the more liable are they to assume a high degree of activity whenever they are excited.

"Numerous narrow convolutions allow a more extensive envelopment of the gray matter by the pia mater, and a much thinner distribution of capillaries. They favour a more equable and continuous circulation, without much change from excitement to depression, except on some occasional but very strong impulses. They promote an almost unceasing activity and wakefulness necessary for the support of many animals, especially the larger kinds of herbivorous ones. As a great bulk of brain is liable to disorder or injury in the exercise of large animals, broad convolutions coincide with a great elasticity and lightness of tread, and numerous narrow ones with heavy and violent motions."

Many of the preceding conclusions appear to us to be unsupported by sufficient proofs, and in reference to the last sentence we would observe that the brain of the Cetacea is remarkable for the number and narrowness of the convolutions, while their movements in a liquid such as they inhabit would seem to exempt them from those violent shocks to which the larger and heavier land mammalia are subject, the convolutions of whose brains are by no means so narrow nor so numerous as those of the cetacea.

In his description of the physical faculties of the nervous system Mr. Swan observes:—

"On dividing the oblong medulla in different directions, it seems as if the parts composing it are so intimately combined that they cannot act separately. When, however, each part is carefully traced to or from the brain, it exhibits a proper character, from which it derives peculiar qualities. . . . The oblong medulla has posteriorly on its central part the posterior pyramidal bodies, and the surface extending upwards from them is the floor of the fourth ventricle, constituting the continuation of the sensitive tract, and giving origin to the sensitive nerves. On its anterior central part the anterior pyramidal bodies are placed; these give origin to motive nerves, and form the continuation of the voluntary tracts. In the middle surface, between the sensitive and voluntary tracts, the involuntary tract is placed: it resembles a large ganglion, and forms a case containing cells of interwoven gray and white matter. It gives origin to nerves especially concerned in vital involuntary functions. Besides the preceding parts, there are the restiform bodies, situated laterally, and, between these and the anterior pyramidal, the olivary bodies."

He traces the tracts from the oblong medulla in the following manner:—

"From the posterior pyramidal bodies in man the sensitive tract extends to the floor of the fourth ventricle. It is continued upwards at the base of the quadrigeminal bodies, and forms a thick cord, and assumes some appearance of a ganglion just before the geniculate bodies, and behind the posterior commissure it passes outwardly across the posterior margin of the thalamus, underneath [above] the optic tract, and posteriorly to the involuntary tract. It expands underneath the epithelium lining the ventricle. Numerous fibres, the anterior of which are the largest, spread out in ascending to pass through apertures at the outer side of the great commissure to their appropriate convolutions situated on the outer side of the summit of the brain. There is a slight difference in the direction of the fibres: some of them pass to the surface of the posterior horn underneath the epithelium, and others on the surface of the inferior horn, as it winds round the outer margin of the crus of the brain. Some of the deeper fibres become combined with the convolutions bordering on the inferior horn. The more superficial fibres spread immediately beneath the epithelium, are of a finer texture, and are connected with nearly the whole length of the optic tract, and with the roots of the olfactory nerve. The sensitive tract below the quadrigeminal bodies becomes more flattened and less thick. Posteriorly to the annular tubercle it gives origin to one half of the larger portion of the fifth nerve; and a little lower, at the side of the fourth ventricle, it gives origin to the auditory nerve. From the posterior pyramidal bodies it is extended on the posterior surface of the spinal cord.

"Each anterior pyramidal body in man represents a voluntary tract, and after forming combinations in the annular tubercle with layers of the inferior pedicle of the cerebellum, becomes a crus of the brain. On entering the hemisphere, it appears as if the greater portion of it were immediately separated into innumerable threads, radiating freely amongst the gray matter in the internal oval receptacle, which forms the base of the striated body. The anterior and larger portion of it spreads out beneath the gray matter of the surface of the striated body, to be combined with the inner attached side of the great commissure, and sends off tracts to be covered with gray matter for forming the convolutions of the anterior and median side of the hemisphere. The second portion of the crus, which is less than the first, and the third, which is the least, after forming some combinations with the more exterior portion of the gray matter, becomes inserted into a perpendicular stratum of white matter, which forms the partition between the internal and external oval receptacles. The more central tract of this partition is very thin, and concave internally; its upper margin is thick, and forms the upper boundary of the oval receptacles; the under margin is less thick, and forms the under boundary of the oval receptacle; and both are extended backwards into the large caudiform process. The external oval receptacle resembles the internal one, but acquires wider dimensions in approaching the surface of the hemisphere, and

has several low convolutions placed in it, which are described as forming an island in the fissure of Sylvius. White tracts enter these low convolutions anteriorly from the anterior descending portion of the upper margin, and posteriorly from the under margin of the external oval receptacle. The upper margin of the internal oval receptacle, as well as that of the external one, becomes combined with the outer attached side of the great commissure, and sends off tracts to be covered with gray matter for forming the convolutions on the outer and upper and anterior surface of the hemisphere. The under margin of the internal oval receptacle is especially connected with the second division of the crus, and sends a large tract to the inferior convolutions of the inner and inferior portion of the anterior lobe. The caudiform process communicates with the posterior wall of the great commissure, and sends large tracts downwards and forwards to constitute the inferior margin of the external oval receptacle, and give off smaller tracts, to be covered with gray, for forming the convolutions on the surface of the middle lobe. The caudiform process also sends off tracts on the median side, to be covered with gray, for forming the convolutions on the inner surface of the posterior lobe, and other tracts outwardly, to be covered with gray for forming the outer convolutions of the posterior lobe.

"Each half of the involuntary tract in man begins at the ring on the inner side of the thalamus, and extends backwards through the upper or posterior surface of the corresponding crus of the brain; it is separated from its fellow by the sides of the passage from the third to the fourth ventricle. The ring, which is very distinct, is much smaller in proportion to the thalamus, and the soft commissure does not pass through it as in animals. The ring lies underneath the epithelium, at the inner side of the thalamus, between the posterior commissure above and the posterior part of the mamillary eminence below. A large bundle of fibres, originating from this ring, is conducted across the thalamus and the narrow end of the striated body, between the sensitive and voluntary tracts. It passes upwards between the fibres at the outer margin of the great commissure, and terminates in a convolution placed at the outer side of the summit of the brain towards the posterior part of the middle lobe. There does not appear to be any communication of the tract of each side through the great commissure, but they are combined in the oblong medulla at the lower parts of the crura near the annular tubercle, and placed between the voluntary tract anteriorly, and the sensitive posteriorly. Near the lower end of the annular tubercle it becomes expanded, laterally, in giving origin to one half of the larger portion of the fifth nerve. At the lower margin of the annular tubercle the origin of the auditory nerve forms a slight connexion with its posterior surface; it then becomes expanded in a broad and thick heart-shaped ganglion, the base being uppermost, and, after the removal of the anterior pyramidal, the olivary, and restiform bodies, the glosso-pharyngeal nerve and par vagum [pneumo-gastric] are seen firmly attached to it, and taking their principal origin from it.

At the bottom of the oblong medulla the apex of this heart-shaped ganglion terminates in the continuation of the tract, which is extended throughout the spinal cord at the bottom of the deep anterior fissure, and becomes combined with both the anterior and posterior quarters of the cord."

Mr. Swan states that he has found in several mammalia an arrangement of the tracts closely resembling that in man, more especially of the sensitive and voluntary. The involuntary tract presents some differences, but none of any importance. The lithographic plates, which are very well executed, represent the progressive steps of the intricate dissections required to display the anatomical parts above recorded: the first fourteen being appropriated to the human brain, and the remaining eight to those of the horse and ox.

The different tracts, and their ramifications, are represented with a distinctness of outline and completeness of isolation which would appear incredible to those accustomed only to the ordinary dissection of the brain. Mr. Swan's long experience and well-known ability as an investigator of the nervous system, are a guarantee to the anatomical portion of the profession of the accuracy of his illustrations. We feel, however, that further examination is necessary to enable us to pronounce with certainty on the correctness of his views. On the assumption that Mr. Swan's representations are free from error, we feel bound to say, that he is deserving of high praise for the labour and skill which he has employed in a most difficult investigation, and for the clear views which he has been thus enabled to afford of anatomical relations hitherto obscure.

"The sensitive tract," he says, "in its ascent from the spinal cord is connected with the auditory nerve, and half of the larger portion of the fifth; with the quadrigeminal and geniculate bodies, and with the optic tract through the fibres spread on the descending horn of the lateral ventricle, ... some of which reach also to the roots of the olfactory nerves. It thus communicates with a portion of all the nerves of the senses, so that every special sense partakes in some degree of common sensation, and sympathizes with the rest, and produces a feeling of integrity, even when one or more of the organs is deficient or mutilated."

We do not clearly understand the last lines of the foregoing paragraph, and we have to observe that Mr. Swan here, and on another occasion, speaks of the part still called by some the olfactory nerve, as if it were really the nerve of smell, and not that part of the brain, the olfactory bulb or ganglion, whence the olfactory nerves arise.

Again, he says:—

"The involuntary tract is the source of a peculiar perceptive and irritable power, manifested in the organs its nerves supply. Any moderate impulse is confined to the organ and its nerves; a more enduring one gradually and almost imperceptibly modifies the activity of the muscles subservient to it, either through the nerves in connexion with it, or through the convolutions, until a state agreeable to its perceptions is restored.

"The few nerves given off from the involuntary tract perform very extensive and complex functions. Through the half of the larger portion of the fifth nerve, originating from it, it combines the nose and mouth and their appendages, and allows the local muscles to be excited either alone or in concert with other nerves and organs under its influence, as in taking food, and especially in sucking and in respiratory functions. Through the glosso-pharyngeal nerve the back of the tongue and fauces are excited in swallowing; through the par vagum [pneumogastric], in concert with the glosso-pharyngeal nerve, the pharynx, the œsophagus, and stomach, have their powers exercised. Through the extension of the involuntary tract into the spinal cord, and its probable connexion with some of the roots of the spinal nerves, as well as through several plexuses formed between its [the spinal cord's] nerves and the sympathetic, the muscles of the chest and abdomen are brought into action in consonance with the parts receiving its [the involuntary tract's] nerves, in sneezing, coughing, speaking, singing, and various modifications of the voice; also in ruminating, vomiting, and other acts of evacuation."

Mr. Swan thinks it very probable that the posterior roots of the ordinary spinal nerves, and those of the spinal accessory, like the large root of the fifth nerve, are connected with both the sensitive and the involuntary tracts; and that these tracts, like the voluntary, cross in their passage between the brain and spinal cord. For his arguments on these subjects, and his views on several other points of interest, we must refer the reader to the work itself.

We have been surprised in perusing this book, the production of an accomplished anatomist, to find a large number of ill-constructed and obscure sentences, which in an ordinary writer would be held as evidences of either confusion of ideas, or want of verbal power.

We have already noticed in our quotations some of these obscurities, and we think it not improper to notice still further such departure from the path of correct writing.

At page 6 we find—

"There is a sufficient agreement between the several parts for a vital coaptation, and for nourishment, by means of the same blood-

vessels, but not for interfering with each other in the performance of their respective functions."

We should think that the closer the agreement, the less the likelihood of mutual interference.

At page 11 he says:—

"The sensitive faculty forms an essential part of the sensory; and probably through it not only the nerves of common sensation, but all those of special senses, have their *several variations of sense* [the various impressions made upon them] recognised and perfected either separately, when they relate to one, or in combination, when they refer to several qualities of the same object."

Again:—

"The spirit in which impulses are, however, recognised, depends very much on the capacity and activity of the whole sensory, so that each impression in animals is principally noticed or not according to the state of the system with regard to the necessity of gratifying any of the habits or passions; but in man much more in respect of the intellect."

This is, at least, obscure.

At page 12 we are told that—

"The anterior pyramidal bodies bear a certain proportion to the spinal cord, . . . they are, therefore, wide apart when the brain is large, and closer when the brain is more simple. *According to their equality of size, they have similar physical powers over the muscles.*"

What does this mean? Further on, in the same page, we learn:—

"That a small brain suffices for the agency of the will, if the muscles, however large, are restrained by mechanical contrivances; for the will then appears not to be often exercised except when very strong impressions are made on the sensory, either by the organs supplied by the involuntary nerves or those of the senses."

We have endeavoured in vain to detect the meaning of the foregoing sentence. Further on we are told—

"The appropriate convolutions of the involuntary tract are proportionate to its size, independently of the greater or smaller extent of the whole sensory. By its connexion with the sensory, its nerves derive a higher perceptive power for allowing the organs supplied by them to act in concert with sensitive parts and with voluntary muscles, not only for insuring a due replenishment of purified blood, but for a co-operation with the intellect, in effecting changes of the voice, and various acts requiring modified powers of the chest in the use of the limbs."

We regard this sentence as the *ne plus ultra* of obscurity and confusion.

We might quote several other sentences distinguished by a similar unhappiness of construction, but we think we have adduced enough to prove that our charge of a too great disregard of the laws of philology has not been pronounced without sufficient foundation.

We will make only two more quotations, for the purpose of expressing our concurrence in the theory which they contain. Mr. Swan remarks in page 5:—

"When all parts of the brain and nervous system have been enumerated, there would remain a great deficiency in their means of agency unless the organs of the body were noticed along with them. In almost every animal some difference of perception is derived from the quality of the circulating fluids, from the vascular arrangements, and from the mode of construction of each organ of the body."

And in page 11:—

"In the production of the peculiarities of habits of the animals, it is probable that there is a modification in the quality of the sensory, the nerves, the organs, and the blood."

We have long maintained the opinion that the intellectual and the moral qualities of animals and man are largely dependent on the condition, original and acquired, of the various organs, and indeed, in greater or less degree of all parts of their physical system, and not solely on the mode of structure, and the comparative predominance or deficiency of certain parts of the brain. This important truth has been too much excluded from the system of phrenologists, who have laboured to demonstrate in the brain organs sufficiently numerous for all the moral and intellectual tendencies, and sufficiently powerful to determine absolutely their characters; and still more unhappily has it, with all its practical tendencies, been disregarded, because unknown, by legislators, and those who have had the charge of education. Its truth and great value have been proved in many instances by its application in the treatment of the insane.

We conclude by recommending Mr. Swan's work to the careful perusal of the anatomist. Its excellent illustrations will afford a very clear conception of the author's anatomical views, and will serve as a guide to those who may desire to follow in his path; and the letter-press contains a large quantity of matter condensed into a small space, the greater part of which is well worthy of the pains sometimes required towards a full understanding of its purport.

The Microscope in its special Application to Vegetable Anatomy and Physiology. By DR. H. SCHACHT. Translated by F. CURREY, ESQ., M.A. With numerous Illustrations. London: Highley, 1853. 12mo ; pp. 131.

THIS nicely got-out volume purports to be a translation of the work of Dr. Schacht, the celebrated naturalist. The enterprising publisher informs us that it is intended as the second section of a "library of science and art" in which, the student may by easy steps become familiar with the great principles of philosophy; and those apparent mysteries opposing his progress in knowledge be divested of much of their obscurity.

The first three chapters contain very clear and highly practical suggestions, specially deserving the study of those desirous of becoming vegetable microscopists, and are also well worthy the attention of all engaged in histological study, since, in a brief but perfectly explicit manner, directions are given how those many appearances which are liable to confound the investigator may be avoided, while the true character of such errors are at the same time fully pointed out. An ingenious and simple instrument is figured in the second chapter, by which the investigator may be enabled to make vegetable sections of the most extreme tenuity. The recommendations and directions which are here set forward we heartily recommend to the perusal of those not already familiar with the practical working of this instrument, and perhaps many who profess an intimacy with, and talk learnedly of, minute structures might also derive profit from their perusal.

The different forms and arrangements of the cells of plants, and the methods of procuring and examining them, are detailed with much distinctness and perspicuity. The fourth, fifth, and sixth chapters, while avoiding the undue use of technicalities, which are so calculated to embarrass the unprofessional student, still afford unmistakable evidence of the competency of the author, as well as the anxiety of the translator to simply and yet distinctly treat a highly interesting and important subject.

It is scarcely requisite that we particularize either the microscopic appearances set forward, or the means by which they may be recognised. It is sufficient to observe, that, as the work does not profess to entertain those very abstruse questions, respecting which conflicting opinions exist, but rather to guide the student in his self-seeking after knowledge,—the first are in accordance with the present state of our knowledge; and the

second bespeak a practical acquaintance with the minutest considerations essential for the investigation of vegetable structure.

The sixth chapter, by numerous well-executed woodcuts, illustrates the development of flowers. We would particularly recommend the seventh and eighth chapters as offering valuable suggestions respecting the drawing of objects in natural philosophy generally, and microscopical objects particularly, as well as the best means of preserving microscopical preparations, since on the accuracy of the first, and the perfection of the second, the value of both illustrations and specimens altogether depends.

We congratulate the publisher in having presented a valuable little work in so easily accessible a form, which, unlike many attempts at popular scientific expositions, is neither deficient in accuracy, nor superficial in information. We would, however, recommend, that in the promised continuation of this series stricter attention be given to the correction of the press, so as to obviate the necessity for so long a list of errata as is presented in this volume.

The Common Sense of Cholera. By a Practical Practitioner. London: John Churchill. 1854. Small 8vo, pp. 68.

We had intended postponing for the present all notice of the many works and pamphlets on cholera which have been brought forth by the recently threatened invasion of the epidemic, and with which our table is now loaded; but our attention was so forcibly attracted by the above title, that we thought it would be unfair to debar our readers of a "Practical Practitioner's Common Sense" view of so incurable a malady, or ourselves of the knowledge that might be acquired from an immediate perusal of it. The dramatically poetical style of the opening paragraphs, however, so affected our prosaic mind that we confess we were unable to get beyond them, and we shall therefore preserve them in our pages as a rare specimen of medical writing:—

"I. *What is the Disease?*—For an answer to this question, suppose, proceeding as at an inquest, we commence by viewing the body—that is, by seeing a case.

"Softly, then, and with an awe-struck heart, approach the bed where lays, in middle of the disarray of bed-clothes, tumbled from the restless, outstretched arms, tossed from the restless, outstretched legs, the ghastliness of cholera. Between the half-closed eyelids, only the whites of the eyes are seen, blank, over an awful, mottled-

livid face with shrunken nostrils, and with blue, blue lips. How crooked are the fingers of the hand you take; crooked, blue, and corrugated; contrasting strangely with the pearly nails! How cold the arms you touch, and dark; dark, dark, and icy cold! There is no flutter of a pulse in them. You stoop; you put your fingers on the lips: why the very breath blows cold upon them! And the tongue? Cold; cold, moist, clean; almost with the feel of raw flesh. You speak to him: he turns his glassy eyes on you: "Heat," he whispers—how peculiar is the whisper!—"heat;" and he lifts his dusky, crooked hand down to his shrunken bowels. Heat, internal heat, it tortures him: no draught can slake it or assuage. And yet, how cold the whole surface of his body! Cold, cold; dark, dark! Suddenly, with fearfully rapid toss, with fearfully muffled cry, he startles you! "Cramp," he whispers with wild eagerness, "cramp!" O, soothe his agony! Rub—press—squeeze those knots upon his legs,—before,—behind; those others on his arms—up—down—here—there. Such suffering, such ghastliness, and with a head as clear as diamond: 'TIS CHOLERA!"

The Pathology and Treatment of Stricture of the Urethra, both in the Male and Female; being the Treatise for which the Jacksonian Prize, for the year 1852, *was awarded by the College of Surgeons of England.* By HENRY THOMPSON, F. R. C. S., M. B. Lond., &c., &c. London: Churchill. 1854. 8vo, pp. 424.

NOTHING can better prove the great importance which the study of diseases of the urinary organs obtains with the profession, than the number of works that are constantly being published thereon. It is one, however, which has been hackneyed beyond all precedent; and we cannot but think that all known upon it is by this time well nigh exhausted. We have often alluded to the fact, that, notwithstanding the number of works upon different urinary diseases which emanate in such profusion from the press, there is still required a complete book embodying all the surgical diseases of the urinary organs: such a one as would form a good text-book for the student, and serve as one of general reference for the practitioner.

Writers upon this department of surgery have almost invariably taken up one or two subjects only, spinning them out chiefly by collating and repeating the results of the researches and practical experience of others; while some appear to have written upon a particular branch, such as stricture, merely with a view of extolling or condemning a special method of treatment.

These observations are not meant to apply to the volume before us. It is a treatise written for a purpose, being that to which the Jacksonian Prize for the year 1852 was awarded by the College of Surgeons of England; and without prejudging its merits we may state, that the author seems to have brought no little assiduity and care to the performance of his task.

The book is entirely devoted to the consideration of the "Pathology and Treatment of Stricture of the Urethra:" a subject doubtless of vast importance, still one which, though so frequently made the object of distinct treatises, has been rarely handled in that able and scientific manner which, in the case of some other diseases, has tended so much to the elucidation of their nature, diagnosis, and treatment.

Why the pathology of stricture, both as regards the process of its formation and its effects, has not been more elaborately investigated, and as much as is known upon these points more graphically described, must be a matter of surprise to those who reflect upon the dreadful evils which this disease is so apt to induce. In the case of cardiac diseases, for instance, pathologists have pursued the investigation of their morbid characters with the most energetic ardour, and this has chiefly been the means of removing the obscurity which a few years ago overshadowed these affections, and of rendering their diagnosis more easy and accurate. And if the diligence with which the pathology of the heart has been prosecuted has done so much, in a practical point of view, an equal amount of attention to the pathology of the expulsive part of the urinary apparatus would prove of still greater practical utility: since in the former the knowledge gained by research has done little more, comparatively, than render diagnosis easy and prognosis certain; whereas in the latter it would doubtless lead also to marked advantages as to treatment.

The work of Mr. Thompson on the pathology and treatment of stricture opens with a very excellent description of the anatomy and physiology of the urethra. The opinions and researches of the most eminent anatomists are carefully collated and put together with perspicuity and methodical arrangement, some results of the author's individual investigations being added. We shall only refer to one subject in this part of the work, viz., the muscularity of the urethra. We had occasion a short time since to consider this particular point in our notice of Mr. Hancock's excellent little Treatise on Stricture, and we now repeat the opinion which we then expressed, that though we do not deny the existence of minute involuntary muscular fibres along the urethra, principally because so many

able microscopists have declared their presence, still that most if not all the phenomena observable, both normal and abnormal, are explicable altogether upon other grounds. Mr. Thompson is amongst those who contend that the urethra is muscular throughout, and adduces in proof the common illustration that instruments are frequently grasped in the canal and expelled with considerable force in their withdrawal. He strongly recommends these phenomena to be brought to the test of personal experiment, and insists that no surgeon should attempt to pass an instrument for a patient who has not first introduced one through his own urethra. We certainly do not possess that ardour for the cause of science, or sufficient passion of benevolence to induce us to perform an operation on ourselves which, though neither very painful nor dangerous, is, we believe, productive of as disagreeable results as can possibly be experienced, and this to become personally convinced of what we have so frequently witnessed, as a matter of necessity, in others. For ourselves we say, "sufficient unto the day is the evil thereof"—we have not the least fancy to become martyrs for the purpose of deciding a disputed question of this sort. Extend the argument of the necessity for personal infliction of operative procedures, and where will it end? We fear that we should soon become rather mutilated and useless ministers of the healing art!

The phenomena of the grasping and expulsive force exercised on instruments by the urethra we have indeed frequently witnessed in practice, and they certainly appear to favour the idea that the canal is muscular; but let us ask two questions,—first, is there ever any sensible expulsion of the instrument observable once it escapes fairly beyond the bulb? Second, is there ever any positive grasping sensation to be felt anterior to the bulb when a bougie or catheter, too small to dilate the canal, is employed?

Mr. Thompson says that these phenomena are exhibited by every portion of the urethra. We shall not deny this statement, but we doubt it. However, we shall put this matter to the test of experiment, not on our own persons, but whenever opportunities present in the case of patients requiring the employment of bougies or catheters.

The Second Chapter is devoted to a review of the classification and pathology of stricture. The author adheres to the division of strictures, which we conceive to be the most comprehensive and correct; it is, in fact, the one adopted by Sir Astley Cooper, viz., into the permanent or organic, the spasmodic, and the inflammatory. These classes will be found to

include all the varieties of stricture to be met with. The subdivision of permanent stricture he lays down we do not so much approve of. We think the simplest and best subdivision is into the "chorded,"—which corresponds with the "simple membranous," the "whipcord," and the "annular" stricture,—the "long" and the "bridle" stricture, these constitute all the varieties of permanent stricture known to morbid anatomists. The "partial or lateral," the "adhesions of the rugæ," "cicatrices," and "irregular contractions," enumerated by the author, are virtually but peculiarities or modifications of the former.

The following is the description of the morbid conditions which are to be found in the urethra, from the simplest sort of stricture to the worst:—

"On laying open a strictured urethra after death, we shall accordingly discover that the structure in which the constriction itself is seated is by no means always the same. It may be almost confined to the mucous membrane of the urethra, in which case it, as well as the bundles of elastic fibre beneath, appear to be simply hypertrophied, a condition which may be regarded as the primary and most elementary form of stricture; and the narrowing usually disappears when the section is made, leaving perhaps only a faint white line or two by which to indicate its situation. There is no particular redness of the membrane or congestion of its vessels to be observed; yet there is good reason to believe that this exists during life, but that it disappears after death. Most commonly the mucous membrane is seen to have lost its transparency and polish, to be thickened, indurated, or puckered, and on making a section of the strictured part no implication of the deeper tissues may be evident. It is, however, almost invariably more or less adherent to them, a condition which, during life, must in some degree tend to maintain irritation of the part from the straining which the membrane thus necessarily suffers during erection.

"In more severe cases the meshes of the submucous cellular tissue are seen to be filled with deposit, the presence of which destroys its elasticity and mobility, implicates the involuntary muscular fibres, which can no longer be traced, and extends to the proper fibrous coat of the spongy body. In the worst examples, the deposit even solidifies the erectile tissue itself, and constitutes the hard and unyielding mass already described. This condition is sometimes apparent enough to the finger, when external examination is made in the course of the urethra during life, a nodular mass being distinguished surrounding it, in the situation of the stricture, so firm and resistant to the touch as to suggest the idea that it might be a cartilaginous formation. The same condition may be found affecting also the corpora cavernosa, when the whole body of the penis presents a hard, gristly, and knotted feel, and a deformed appearance when erect."

This is a very good and correct description of the morbid characters of stricture generally; but it is to be regretted that no attempt at a delineation of the pathological peculiarities of each variety is attempted. It is rather a description of one form of the disease traced through its successive stages. As to the contraction of the urethra from exudation deposit upon the lining membrane, we feel confident that such kind of stricture must be extremely rare. Mr. Hancock says he has seen several instances of such stricture, but we are rather incredulous upon this point. If lymph be thrown out in any amount, as the result of acute inflammation, why should it not be cast off as in the analogous case of exudative inflammation in the respiratory apparatus? And if the lymph effused is the result of chronic inflammation, and that it is so delicate as to be sometimes visible only with the aid of the microscope, as Mr. Hancock has remarked, how could any appreciable narrowing of the canal be the consequence? Whatever diminution of caliber occurs must obviously be the effect of interstitial deposit of lymph in the membrane itself.

"Just in proportion to the harmony and completeness which obtain in the human economy in the performance of its numerous functions, and in the innumerable relations which each part bears to every other, may be estimated the extent to which habitual deviation, however slight, from the normal performance of a common act, is likely to implicate injuriously other organs, and induce grave results in course of time. True, there is a wonderful power of adaptation in nature to altered circumstances; the self-protective resources of the body are often developed to an extraordinary and admirable degree. But let the abnormity be long continued, and in time the very process by which nature at first defends herself becomes itself a source of evil. These remarks might be illustrated from the history of organic disease in almost every part of the body, but perhaps in none more fully than from that of stricture and its consequences."

This beautifully expresses, in general terms, three pathological facts, which obtain universally,—first, that a deviation from the normal condition in one part leads in process of time to morbid changes in others; second, that there is manifested a remarkable power of adaptation to such altered conditions; third, that when such conditions last long, the processes set up by nature as protective become themselves after a time most serious sources of mischief. These are facts which hold good throughout pathology generally. The effects of stricture are witnessed in the urethra behind the obstruction in the prostate gland, the bladder, the ureters, and kidneys:—

"One of the first results of permanent obstruction in the urethra is hypertrophy of the substance of the urinary bladder, proportioned in amount to the power required to overcome it. Perhaps, antecedently to this, might be reckoned a small amount of dilatation; the ordinary efforts of the viscus being insufficient to accomplish the act of micturition, some of its newly exerted force tells upon its own walls and dilates them. But the compensating principle referred to soon affords the power; the muscular fibres are greatly augmented—the coats of the bladder are thickened throughout—and in time the fibres take the form of trabeculæ or columnæ, interlacing in all directions, and exhibiting an appearance which has been very aptly compared to that presented by the musculi pectinati of the right auricle, or by the interior of the left ventricle of the heart. To what extent this change may proceed it is almost impossible to say. Preparations are exceedingly common in which the coats of the bladder measure from half to three quarters of an inch in thickness, and some even amount to one inch in places. This chiefly depends on hypertrophy of the muscular fibres, although the same condition extends also to the areolar tissue which unites them, and to the mucous membrane as well, especially when there has existed much inflammation of the last-named structure.

"As a consequence of that fasciculated arrangement which the fibres acquire, interstices of varying size are observed between the bundles."

The very first change generally is mere contraction of the viscus, a diminution in its capacity. The earliest sensible effect of stricture usually is some irritability of the bladder, so that the organ contains only a small quantity of urine at a time; accordingly, it becomes contracted, but without any appreciable thickening of its walls. When the obstruction becomes so great as to demand the exercise of force, in order to expel the urine, then the muscular fibres of the bladder become, in obedience to a fixed law in the animal economy, preportionately hypertrophied. So long as the bladder is able to expel the whole of its contents, the hypertrophy is concentric; but when more or less urine is constantly retained, then, as in the analogous instance of the left ventricle of the heart in obstruction at the aortic opening, the parietes become absolutely thickened, but relatively thinned.

The most important, however, if not the most serious, of the mechanical effects of stricture is dilatation of the urethra behind it. This part becomes the source of danger, not only from the risk of rupture, and consequent extravasation of urine occurring, but it frequently is the seat of inflammation, the deposit of lymph, and ulceration which may lead to abscess:—

"Besides the expansion or dilatation of the structures involved, another result is ulceration, commencing in the mucous membrane.

The tissues themselves give way to the destructive agencies which slowly work upon them. First, the mucous membrane behind the stricture, at which spot it is closely adherent to the subjacent structures, strained and irritated by frequent acts of micturition, and by frequent, or indeed by almost constant contact with the urine, soon becomes the subject of chronic inflammation, more of its natural secretion is poured out, mixed with some pus, and it is soon denuded of its epithelial layer. Thus we find after death, that while the mucous membrane of the strictured part itself is opaque, white, and condensed, that which is immediately behind appears extremely thin, and is minutely injected with fine vessels, running for the most part in arborescent forms. Ulceration commences, and more unfavourable circumstances for the occurrence of any healing process can scarcely be imagined, than those to which the newly made sore is thus exposed. It may extend either deeply or superficially."

The Third Chapter treats of the symptoms and pathological effects of organic stricture. We think it would have been better not to have blended these two subjects so much together. The following extracts contain observations upon the symptoms of stricture well worthy of attention:—

"The earliest symptom usually noticed by the patient is a little gleety discharge, almost constantly present in greater or less quantity. Some uneasiness is felt, or it may be occasional pricking pain in some part of the course of the urethra, or a little smarting when the urine passes over it in micturition, but varying in intensity. The contents of the bladder are emptied at shorter intervals than has been natural. The stream is somewhat altered in form, not having the full rounded character of health, but more or less flattened; it may be twisted, spirting, forked, or even divided, which conditions are caused by the current of water being insufficient in size and force to dilate and extend the lips of the meatus externus, so that the fissure-like form of that opening modifies the stream; and if its momentum be insufficient to separate each lip from the other the urine issues above and below, so that two small streams are produced instead of one. At the same time, it must not be concluded that the existence of such a stream is by any means, *per se*, a proof that stricture exists, since many persons, from a tumid condition of the meatus alone, habitually pass such an one. Then gradually, as contraction increases, or as fresh obtacles occur in other parts of the urethra, it grows smaller, and in time the urine may issue only by drops; or, during the passage of a small stream, drops may simultaneously fall directly from the orifice.

"One of the most distressing symptoms, perhaps, from which the patient suffers is the constant desire to make water, which is almost invariably present in severe cases, giving rise, as it does, to frequent and painful acts of micturition. In this way the sleep is broken, or almost destroyed, some patients being compelled to rise from bed

ten or twelve times in the course of the night, while, in the worst cases, or during temporary exacerbations of the complaint, a great portion of the time is spent in laborious and unavailing efforts, by change of posture or by straining, to obtain some relief. These frequent calls to micturate may arise either from diminished capacity in the bladder, through concentric hypertrophy already described, or from increased irritability which may lead to, or be the result of, existing chronic inflammation of the organ, or from an abnormal condition of the urine itself, presently to be noticed; or, indeed, as is most commonly the case, from all three combined.

"There is also, in most cases, an increase of the mucous secretion of the canal, or rather, this is mixed to a greater or less extent with some purulent matter, and has an opaque and slightly yellowish appearance. Not unfrequently it is transparent, or nearly so, and contains numerous fibrous shreds floating in it, which have been compared to particles of vermicelli. This matter oozes from the meatus, and stains the linen, and its presence is a very frequent concomitant of urethral contraction. Indeed, the existence of a long-standing or obstinate "*gleet*," as such chronic discharges are termed, should always arouse inquiry for stricture, and a sound should be passed in order to ascertain the caliber of the canal, if it have not been already done. I have known instances in which this symptom has been so prominent that the patient has been treated for gonorrhœa during a period of many weeks without any suspicion arising that a stricture existed, which was its sole cause, the subsequent recognition of the contraction and its cure having been attended with the complete cessation of the discharge."

A gleety discharge is one of the commonest symptoms of stricture. How frequently have patients been dosed with cubebs and balsams, and the urethra injected with an endless number of astringents, with a view of checking a discharge which depended on the presence of a stricture, the removal of which would have been alone essential to the disappearance of the former!

The Fourth Chapter reviews the causes of organic stricture. The author divides the "exciting or immediate causes" of stricture into four heads, and arranges them and their subdivisions in a tabular form. We think it would have been well if Mr. Thompson had drawn a line of distinction between the terms immediate and exciting cause. He uses them synonymously. The term immediate is generally used synonymously with proximate cause, and this is the most scientific application of the word; the exciting comes under the head of the remote causes, and it will be found of use to bear this difference in mind.

The immediate cause of stricture is chronic inflammatory

action; its exciting cause is any circumstance which is capable of developing inflammation.

As to the question of the relation which gonorrhœa holds to stricture, we cannot conceive how it can be denied that the former disease is, of all others, the chief, fertile, remote cause of the latter. Hunter, it is true, denied that relation; but a careful study of his observations upon this point will satisfactorily prove he did not exactly deny the fact that gonorrhœa may lead to the production of stricture, but rather that there is anything in the specific character of gonorrhœal inflammation which gives it a tendency to produce stricture—an opinion in which we fully concur. Some, however, altogether deny the relation of cause and effect between gonorrhœa and stricture; and amongst many arguments which have been advanced in support of this assertion is the rather illogical one, that all who are attacked with gonorrhœa do not get stricture. It might be argued, with an equal show of reason, that hepatization of the lung is not the result of pneumonia, because in some instances the inflammation is resolved before the disease reaches the second stage: or again, that contraction and immobility of the pupil should not be viewed as the result of iritis, because these ill events do not happen in every instance. In the same way, gonorrhœal inflammation may disappear without leaving the least tendency to stricture, but in the great majority of cases it degenerates into that chronic state, the long continuance or frequent repetition of which works those slow changes in the urethra and outside it which eventuate in the production of that adventitious structure which constitutes stricture. It is, therefore, because gonorrhœa is so apt to leave behind it chronic inflammation, that it becomes such an efficient cause of stricture. We cannot understand how any one could have traced the history, and observed the course, of a large number of cases of stricture, without admitting that there is not to be witnessed in disease a better example of the relation between cause and effect than exists between gonorrhœa and stricture.

How frequently are we able to trace cases of gonorrhœa passing, by almost insensible gradations, into stricture? At first there is acute gonorrhœa; this merges into gleet; and the latter glides into stricture. And is it not even popularly known that, in proportion as a gonorrhœa or gleet lasts long, or that its attacks are frequent, in the same ratio is the chance of the occurrence of stricture increased? But a reference to statistics is by far the best way of settling all such questions. Mr. Thompson has carefully collected 220 cases of stricture,

has analyzed their history, and the result is, that out of that number 164 were traceable to gonorrhœa!

The fifth chapter is devoted to a consideration of the pathology of strictures of transient duration, including the spasmodic and inflammatory varieties. We cannot dwell upon this part of the work, but we strongly recommend its perusal to those who desire sound information on this particular department of the subject.

We now come to the treatment of stricture of the urethra:

"To accomplish the removal of permanent stricture two indications are presented, which may be thus briefly stated:—

"First, to restore the natural caliber of the canal, or at least so far as shall be consistent with the safety and comfort of the patient.

"Secondly, to maintain the adequate patency of the canal afterwards."

The author, after alluding to the fact that various modes of treatment are applicable to different cases, says:—

"All these plans, however, may be resolved into three classes. The opposing tissue of the stricture is either dilated, which usually involves its absorption, as the result of pressure, or it is wholly or partially destroyed by chemical agents, or it is divided by some cutting instrument; and of course all these processes may be more or less combined with certain general or constitutional treatment."

The term "dilatation," employed to designate a principle upon which stricture is cured, is most erroneous. How can a stricture be cured by dilatation? In many instances, no doubt, a bougie will pass through a stricture by mechanically dilating it, but the moment the instrument is withdrawn the stricture resumes its original state. For the cure of a stricture, the lymph constituting the adventitious structure must be absorbed: and this is really what does take place under the influence of the bougie; accordingly, the principle of cure should be termed *absorption*, and not *dilatation*. The means by which absorption of the stricture is effected are various. The author recommends the employment of the metallic sound or catheter; but in this we cannot coincide; experience has impressed upon us a decided preference for gum-elastic instruments. We consider that they are far less liable to do mischief to the urethra than the metallic, or to produce so severe an impression upon the system.

But what, it may be asked, is to be done with those strictures which will not permit the passage of the smallest instrument of any description through them? Our author answers:—

"The employment of continued pressure on the face, or in the commencement of a stricture, is almost uniformly successful, and whether by inducing absorption, or by its mechanical operation upon the yielding materials of the obstruction, or by both combined, certain it is that its use in cases where false passages either do not exist or can be certainly avoided, is unquestionable. The operator, however, should be tolerably certain that he is acting on the contraction, and not following or making a devious track. It is important to remember, as an invariable rule in relation to these attempts, that when the instrument is tightly grasped the operator may infer that its point is safe within the strictured part, but that when the point feels free, movable, and capable of being withdrawn without appreciable effort, it is certainly not in the stricture; it may be, in such circumstances, in a false passage. If after being grasped or 'held' it advances suddenly for a short distance under pressure, and becomes movable, it must be taken for granted that a false passage has been made and the urethral walls perforated; after which unfortunate occurrence all further efforts must be given up, at least for several days, and the employment of instruments, when again resorted to, must be conducted with vigilant care to avoid any re-opening of the lacerated part."

The next part of the treatment of stricture considered is the plan of permanently retaining a catheter in the bladder. Some very excellent remarks are made upon this point; we cannot, however, agree with the writer that the silver instrument is the best for the purpose. We conceive that nothing can be more dangerous than to leave a metallic instrument in the bladder for any length of time. It must be remembered, it is by no means an easy matter to keep a curved instrument of any sort *in situ* in the bladder. If not firmly fixed it is sure to slip out of the bladder into the urethra; and then what serious consequences may ensue! and if it be so steadily settled as that this occurrence cannot take place, what mischief may be the result of the pressure of the point of the instrument against the lining membrane of the bladder! The diminished chance of phosphatic incrustation forming on the extremity of the silver instrument alluded to by the author, as being in favour of the employment of that sort of catheter, is no sufficient argument against the weighty objections to its use which we have advanced. The maxim, that "of two evils we should choose the less," should never be forgotten, particularly in the practice of surgery.

Mr. Thomas Wakley, of the Free Hospital, London, has planned a *urethral scheme*, if we be allowed the expression, with a view of removing "the uncertainty of being able to replace

a small instrument which has been introduced into the bladder with great difficulty if it be withdrawn:"—

"In the treatment of a narrow stricture by this method, a wire of smaller size than No. 1 catheter is used in the first instance, called by him the 'urethral guide,' and carefully passed into the bladder. The advantage, which will now appear, arises from not withdrawing this instrument until another, consisting of a straight silver tube, has been passed over it through the stricture; so that the route being at first correctly taken, all future efforts will to a certainty be made in the same direction, and with greater ease than if the first, or 'urethral guide,' were not present."

We cannot chime in with Mr. Thompson in his laudation of this invention, if such it can be called. A complicated contrivance to effect what is achievable by simple means, which have answered the purpose time out of mind, cannot in strictness be termed a "useful" invention. As to its utility, like many other inventions of the kind, it would be useful enough if its prime object was easy and certain of accomplishment. If once the "urethral guide" is passed, then the subsequent proceedings are simple enough. Yet every surgeon knows the difficulty of introducing even a gum-elastic catheter of No. 1 size into the bladder, owing to the impossibility of preventing its point from catching in the lacunæ and folds of the urethra, and how much less easy must it be to pass a straight wire of smaller size than a No. 1 catheter. And surely if a false passage exists, how much more inapplicable must such an instrument be; besides, there is seldom, if ever, any difficulty in introducing a fresh instrument after the first few days have elapsed, so that the apparatus is unnecessarily cumbrous, even allowing that it may be of use in the first part of the course of treatment. Inventions are of little use if their merit consists only in ingenuity of idea without applicability to practice. But this suggestion or invention of Mr. Wakley's is by no means original, even in idea,—the plan of introducing a "urethral guide" has been long adopted by Mr. Hutton, of this city, in cases of retention of urine arising from tight stricture. Mr. Hutton's apparatus consists of a fine catgut string of considerable length, rendered smooth by a varnish of elastic gum. This is passed through the stricture into the bladder, and then a gum catheter constructed specially for the purpose is slipped over it, the catgut being withdrawn.

We condemn, therefore, this contrivance of Mr. Wakley's, because it comes to us with all the pomp of an original invention, whereas it is in reality but a modification of one long had

recourse to, and far more feasible in every respect, and because it is rather calculated to carry out an abstract idea than to prove of any practical utility.

The Seventh and Eighth Chapters are occupied with observations upon "the employment of chemical agents in the treatment of stricture, and on the method of treatment by internal incision; but as both these plans have become nearly obsolete, we shall pass on to the next chapter, which considers that *vexed question*,—the treatment of stricture by external incision.

After alluding to the "perineal section," as it has been performed from time to time by different surgeons, the author says:—

"In reviewing the history of external operations performed in the perineum (which has on this account been given at some length), it appears that these have long been recognised as necessary to the cure of some cases of stricture which have been impermeable to any other method; and during the last twenty years a good many such cases have been thus treated. That many instances in which they have been performed have terminated fatally is a fact too notorious to need corroboration by cited reports. Nor would a classified Table of such cases furnish data of any utility in testing the value of the operation. For it has been rarely performed except as a *dernier ressort*, as a proceeding of necessity and not of choice, and in certain old strictures of the worst kind in which renal disease has often co-existed, and rendered the patients particularly bad subjects for any operation. And with such a class of cases it is impossible to decide what per centage of deaths should be considered as favourable or adverse to the operation, as indeed it also is in many of the particular cases, to apportion the respective influence of the disease, and of the remedy, in bringing about the fatal result."

He next enters upon the consideration of Mr. Syme's modification of the operation in question, which has been the ground of such active controversy since it was first introduced to the notice of the profession. We were called upon a short time since to discuss this much-disputed point in our review of Mr. Lizars' treatise on stricture[a], and we shall not now recapitulate the arguments then advanced, but shall merely repeat this one observation, that, whenever Mr. Syme shall furnish us with the necessary statistics, that his operation proves a far "*safer, quicker, and more permanent*" means of curing certain strictures than the ordinary method we shall at once advocate and employ it.

As to the question of the "permeability" and "imperme-

[a] New Series, vol. xii. p. 136.

ability" of strictures, with which the operation of Mr. Syme is so much mixed up, we regret that our author should not have handled it in a clearer and more satisfactory manner. How much confusion would be avoided, and how much positive error, by exhibiting some little regard to logical accuracy.

If by the term "impermeable stricture" is meant one that cannot be traversed by an instrument until after frequently-repeated efforts; until, in fact, a considerable portion of the adventitious deposit has been absorbed,—there are hundreds of such instances. If, on the other hand, by the term "impermeability" be meant complete obliteration of the urethra at the strictured point,—then there are but a few examples of such a condition to be found: yet the term is more strictly applicable in this sense. Whichever meaning be attached to the word "impermeability," let it be strictly borne in mind, and let conclusions be drawn accordingly.

Mr. Syme seems to have confused himself, as well as those who have entered with him into the arena of argumentative strife, by using the term "impermeable" apparently in the two senses just referred to. Sometimes his phraseology would convey that there is no such thing as obliteration of the urethra; at other times it would lead us to infer that his views do not differ from our own in any material respect. Mr. Syme, in one part of his writings, says: "As to the question of 'impermeability,' I simply maintain that if the urine passes out, instruments may always, by care and perseverance, be got in beyond the contraction." What is his exact meaning here?

If he means that because a fluid can pass through a narrow point, therefore a solid body must likewise do so, we cannot concur in his reasoning; but if by "care and perseverance" it be intended to convey that no stricture will resist the constant application of instruments, then we may agree with him, though, perhaps, not to the full extent. Mr. Liston expressed himself in equally loose phraseology upon the same subject.

Now upon the settlement of this point, simple as it may appear, a great deal of the admissibility of Mr. Syme's operation depends. If it be possible always to pass a grooved director, of the size employed by Mr. Syme, through every sort of stricture, merely by adroit manœuvering, then should it be capable of proof that division of the contraction will constitute a more *permanent* cure (which, however, we doubt, the operation alluded to must be looked on as one of the greatest advantage. But if the stricture becomes passable only after the persevering use of instruments—which

implies absorption to a certain extent of the adventitious structure,—then wherein consists the utility of following up the the cure by so serious a method as external incision. For our part, we have seen quite enough of stricture to feel thoroughly convinced that many cases are to be met with which are to all intents and purposes "impermeable" or "impassable;" that is, where the obstruction is so close as to render it physically impossible to pass an instrument of any size. Dexterity, no doubt, can accomplish a great deal in the use of the catheter, as it can in any other operative proceeding, but it cannot work wonders. The most accomplished necromantic skill will not allow the achievement of urethral miracles, no more than it will enable its possessor to overcome the laws of nature in any other instance; and suppose now, for argument's sake, that there is no such thing as impermeable stricture, allow us to ask, is it never necessary to employ any force in passing Mr. Syme's director through the obstruction, and if so, is there no risk of making false passage? The whole practical advantage, however, of Mr. Syme's operation, turns upon this one consideration,—does it, in those relapsing forms of stricture, constitute a *more permanent* means of cure than the ordinary method? We want proper statistics to establish this point.

The Tenth, Eleventh, and Twelfth Chapters treat respectively of urinary abscess, retention of urine, and stricture of the female urethra, upon each of which subjects, though the observations are short, much valuable information may be gleaned. Added to the work is an appendix of many pages, containing most excellent instruction, both pathological and practical.

We now take leave of Mr. Thompson's Treatise, and we cannot better express our approval of it than by stating that for accuracy, perspicuity, and methodical arrangement of the different departments of the subject, it surpasses any compilation—and they are not a few—on the pathology and treatment of stricture which we have ever perused.

Surgical Anatomy. By JOSEPH MACLISE, F. R. C. S. Second Edition. London: Churchill. 1853. Folio. Fasciculi I. II. and III. Plates 1 to 12.

WE have, on a previous occasion, when reviewing the former edition of this work, entered into an account, not alone of its auctorial, but of its artistic execution, and at the same time expressed our opinion as to the gratitude due by the profession

to the spirited publisher for placing such a book within the reach of all, both students and practising surgeons, by issuing it at so low a price. We are pleased to find, from the notice by Mr. Churchill on the cover of the first part of this second edition, that the 1000 copies which were originally published by him were all exhausted in six months after the completion of the work, proof sufficient of the response of the profession to the liberality of the publisher. We know that the character of Maclise's Surgical Anatomy is now so well established, and so universally known, as not to need our eulogy,—yet we cannot avoid again expressing our opinion as to the fidelity and beauty of the illustrations, and the clearness and correctness of the letter-press descriptions. It is truly a magnificent book, presenting a rare combination of the *utile cum dulci*.

Inconographie Ophthalmologique, ou Descriptions et Figures Coloriées des Maladies de l'Organe de la Vue, comprenant l'Anatomie Pathologique, la Pathologie et la Thérapeutique Médico-Chirurgicales. Par le Docteur J. Sichel, Professeur d'Ophthalmologie, Médecin-Oculiste des Maisons d'éducation de la Légion d'honneur, etc. Paris and London: Hippolyte Baillière. 1852. 4to. Parts 1 to 4.

The late period at which we received the four first parts of this work prevents us from doing more in our present Number than announcing their receipt; but even this we cannot do without recommending the work, in the strongest terms, to all our readers who are interested in the study of diseases of the organ of vision. They have here presented to them, at a very moderate price, the most perfect coloured illustrations of the morbid changes which affect the eye that have been ever published; the name of the author, *the* French oculist of the day, being a sufficient guarantee for their correctness, and for the descriptions with which they are accompanied. Whether we look at the plates now before us as perfect works of art, or as faithful pathological drawings, they are in truth very beautiful.

PART III.

MEDICAL MISCELLANY.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

FOURTEENTH SESSION.—1853-54.

Ovarian Disease.—Dr. Banks exhibited an ovarian tumour, removed from the body of a woman aged 40, who had been admitted into Sir Patrick Dun's Hospital in March, 1853. She stated that twelve months before that period she, for the first time, noticed an enlargement of the abdomen; it had attained a considerable size when her attention was attracted to it by a sense of uneasiness and weight; she also suffered from sickness of the stomach, more especially in the mornings. She was obliged to give up her employment as a servant a few months before her admission into the hospital. She did not present the appearance of a person suffering from organic disease; she had not lost flesh, nor was her complexion unhealthy; the dragging sensation (which was present from the beginning of her illness) was most distressing when she lay upon her left side; the abdomen was much enlarged, irregular in outline, and more prominent at the right than at the left side; the sound elicited by percussion was everywhere dull, except in the left iliac region; it was not altered by changes of posture. She complained of frequent micturition and constant sickness of stomach; the catamenia were regular.

Considerable difference of opinion existed among those who examined the case from time to time, as to the cause of the enlargement of the abdomen, some ascribing it to the existence of an ovarian dropsy, while others believed it to be owing to ascites. A very careful investigation, however, of the signs and symptoms of the disease induced Dr. Banks to coincide in opinion with Dr. Lees (who had seen the case before the woman came into hospital), that the tumour was an ovarian cyst; and it was agreed to perform the operation of tapping. The phenomena upon which the diagnosis

was principally founded were, the irregularity of the tumour, its much greater prominence upon one side than upon the other, and the resonance in the left iliac region. The operation was performed by Dr. Williams, and eighty-three ounces of a beautifully transparent fluid, slightly tinged with blue, were drawn off. Some slight symptoms of peritonitis ensued, but were subdued by treatment, and on the 2nd of August the patient was transferred to the Whitworth Hospital, and shortly afterwards the sac was again punctured, and upwards of twelve quarts of fluid evacuated. It resembled now the ordinary fluid of ascites.

From this period her health and strength rapidly declined; on the 20th of November she was attacked with a severe diarrhœa, and died on the 6th of the present month.

The post-mortem examination of the abdomen disclosed a very large ovarian tumour upon the right side, adherent to the peritoneum in front, and to the intestine posteriorly. It consisted of three sacs, which did not communicate with each other. The largest of these sacs was filled with a sero-purulent fluid, and its lining membrane was covered with minute arborescent vessels. The left ovary was healthy; a small pendulous tumour existed in the uterus, and another in the vagina.—*November* 26, 1853.

Fungus of the Bladder.—Sir Philip Crampton, having first offered some general observations upon the various causes and sources of hematuria, exhibited a specimen of fungous growth from the interior of the bladder. The patient was a man of advanced age, who for three years before his death had suffered from hematuria; the bleeding was seldom absent for more than three days at a time; any rough exercise was certain to produce it; it was accompanied by pain and extreme irritability of the bladder, yet during nearly the whole of this long period the patient's health was scarcely affected. For some time previous to death the urine was scantily secreted. Death was immediately preceded by a convulsive attack.

The post-mortem examination was made by Dr. Hughes. A large cerebriform tumour was found springing from the internal surface of the neck of the bladder; the lining membrane of the entire organ presented the anatomical characters of chronic inflammation, and the cavity of the viscus contained about four ounces of thick purulent fluid mixed with blood. The right kidney was converted into a large membranous sac, which contained half a pint of turbid fluid; the left was hypertrophied, being of twice the normal size.—*November* 26, 1853.

Abscess in the Brain.—Mr. Hamilton exhibited a specimen of abscess in the brain, and gave the following history of the case:—A young woman, aged 25, was admitted into the Richmond Hospital, labouring under some affection of the head. Her manner was extremely odd, and at times she appeared quite silly, laughing without any cause at one moment, and at another becoming extremely

dejected, moaning, and pressing her hand to the right side of her head. Sometimes, again, she would become excited and hysterical, especially if stared at. She gave a very imperfect history of her illness, her memory seeming much affected; but as far as we could learn, she had been suffering from an intense pain in the right side of her head for more than a month. Sometimes it was so intense as to prevent her knowing what she did; it was also intermittent, subsiding for some hours, and then returning with increased violence.

Before she came into the hospital a small swelling formed on the side of her head, and a medical man whom she consulted made an incision through it down to the bone. The wound, on her admission, presented the appearance of one connected with carious bone, but on introducing a probe, it did not communicate the sensation of striking against diseased bone, but passed very freely under the temporal fascia; and the surgeon who made the incision remarked that it produced much less pain than usual. Her state soon became much worse; she scarcely answered any questions; if told to show her tongue, she would keep it protruded like a person in fever, and frequently if her mouth was opened it was found full of food, as if the instinctive action of swallowing was not performed. She soon began to pass both urine and fæces under her, and became comatose. The treatment adopted was that usually pursued in such cases; leeches were applied, cupping, and large blistering, and she was brought under the influence of mercury. As soon as the mercury began to act on the system, some amendment took place. She recovered from the state of coma, and became, to a certain degree, sensible, so that I had some hope of her recovery. But the improvement stopped short here, and I perceived now, for the first time, that she had a slight degree of paralysis of the right side of her face. She had also slight convergent strabismus, chiefly of the right eye, the pupil of which was dilated. The pulse at first was upwards of 100, but while in the comatose state it fell to 50, and remained at that number until the end of her illness. She again, by degrees, became unconscious, and fell into a profound coma. Before she sank into the coma the second time, the strabismus disappeared, and both pupils became dilated; and when her eyelids were opened, the eyes remained fixed and staring. The right hand was held, with some rigidity, across the breast, and when an attempt was made to raise it there was a certain degree of resistance.

I now held a consultation with my colleagues, which resulted in the opinion that the operation of trephining would not be followed by any beneficial consequence. After remaining in a state of coma for sixty hours, the patient sank. I was anxious to ascertain the condition of the brain which produced these symptoms, and also to discover what was the state of the bone. We found, on removing the integuments, that the pericranium was detached from the bone in the situation of the incision, and that the bone itself was slightly rough. The corresponding portion of the dura mater was easily separated from

the bone, the surface of which was a little rough, but there was no discoloration of either structure. We found, on further examination, a very large abscess occupying the middle lobe of the brain, and reaching the surface so nearly that the greenish colour of the matter contained in the abscess could be seen through the thin layer of cerebral structure. It contained about six ounces of very fetid pus, and was perfectly circumscribed. The brain around the cyst was of its usual consistence, and was everywhere else tolerably healthy. Nature was here doing her best, and if the surgeon had any fair indication, he would have been justified in trephining, and on finding the brain discoloured, in puncturing it. A question here presents itself as to what was the cause of the abscess? Generally speaking, the abscesses in this situation which surgeons meet with arise from caries of the temporal bone, the disease extending to the membranes of the brain, and from them to the brain itself. Here, however, the disease began in the brain itself. The patient was of a respectable family. Four years ago she had been seduced under a promise of marriage; this preyed severely on her mind; she got into low spirits, and became subject to hysterical attacks, in which she sometimes remained for several hours. Soon after this her mother became deranged, and she had to attend her. This was another shock to her mind, and exposed her to much mental and bodily distress. No fact is more familiar to medical men than that any sudden mental shock may cause an attack of apoplexy, &c. I knew a case myself in which a man went to the bank to draw £800; he found the bank closed, and was immediately seized with an attack of paralysis from apoplexy. We may, therefore, fairly conclude, that continued mental anxiety would produce such a disturbed state of the brain, that any slight additional cause would produce the disease of which this patient died. After she had suffered from all this anxiety, she slept one night in a damp bed, and rose in the morning with a severe headach, which she was never afterwards free from.—*Dec.* 3, 1853.

Osteosarcoma of the Head of the Humerus.—Professor R. W. Smith presented an example of malignant disease of the head of the humerus. The morbid action commenced in the interior of the bone, and the surrounding shell of the head of the humerus gradually enlarged into a globular tumour, the surface of which was irregular, and nodulated, and of various degrees of firmness, being in some parts of a cartilaginous hardness, in others of a pulpy consistence and elastic to the feel, but nowhere possessing the firmness of the healthy osseous tissue. The interior of the morbid structure presented the same variety of consistence, being composed of softened bone, fibro-cartilaginous matter, and a gelatinous substance, resembling size; there were also a few small cysts, containing oily fluid; the bony matter was rough and spiculated, and the colour of the morbid growth presented various shades of white and yellow.

The subject of this disease was a female, aged 30. She stated that eighteen months before her admission into hospital she was attacked with a fixed pain in the joint; it did not, however, much inter-

fere with the motion of the limb until fourteen months had passed over, when the upper and anterior part of the articulation became swollen, and motion difficult and painful. The superficial veins became turgid, and the enlarged joint gradually assumed a globular form, and acquired an elastic feel. Latterly she became subject to cough and hemoptysis; she lost flesh, and her aspect was pale and very unhealthy.

About six weeks after her admission into hospital, the limb was removed at the shoulder joint, but upon the day following the operation she had syncope and vomiting, a rapid pulse, foul tongue, ardent thirst, and great restlessness and jactitation; a low, muttering, delirium succeeded, and she died upon the morning of the fourth day after the removal of the limb.—*December* 3, 1853.

Chronic Rheumatic Arthritis of the Wrist Joint.—Professor R. W. Smith exhibited a very remarkable specimen of this disease, affecting the lower extremities of the radius and ulna, and also the first range of carpal bones. The cartilage had disappeared from all the articular surfaces, and the reticular tissue of the bones was exposed, with the exception of the cuneiform, which presented a highly-polished and smooth surface, like that of ivory; it was in contact with a similar surface upon the end of the ulna, the triangular cartilage having been absorbed. The scaphoid bone was greatly enlarged and flattened,—it measured an inch and a half in length, and an inch in breadth. The enlargement had taken place chiefly towards the dorsal surface of the wrist. The semilunar bone was also much enlarged, and its centre was traversed by a complete solution of continuity. Several foreign bodies (one of which was as large as the pisiform bone), were connected with the dorsal margins of the semilunar and cuneiform bones and adjacent ligamentous structure. There were likewise two connected with the anterior annular ligament and with the palmar aspect of the semilunar bone. The pisiform bone was hypertrophied.

The lower end of the radius was of immense size, being two inches in extent from side to side, and one inch and a quarter from before backwards, and the palmar margin of the articular surface was fringed with large and very irregular stalactite osseous growths. The portion of the surface which was in contact with the anterior division of the pyramidal bone was slightly polished.

The inferior radio-ulnar joint was also implicated in the disease, the articular surface upon the radius being an inch in its antero-posterior diameter, its vertical extent being three quarters of an inch. The lower extremity of the ulna was similarly altered, and its flattened styloid process had become articular, and rested upon the enlarged cuneiform bone.

The external appearances of the joint, before the integuments were removed, resembled very much those which have been described by surgical writers as marking the luxation of the lower ends of the radius and ulna backwards. The patient was a female of advanced

age, and the disease had been supposed to be the ordinary caries of the radio-carpal joint. The chronic rheumatic disease, of which the wrist presented so striking an instance, had also established itself in metacarpo-phalangeal articulations.—*December* 3, 1853.

Aneurism of the Aorta opening into the Pericardium.—Dr. Neligan, in exhibiting a specimen to the Society, stated that it was chiefly interesting on account of the morbid appearances, as but very little was known of the history of the case. A man was found in the street by a policeman, lying with his back against a wall; he was then breathing, but insensible. He was immediately conveyed to Jervis-street Hospital, but died before he reached the the hospital. On examining the body the following morning, there was found on opening the thorax about half a pint of a clear, transparent fluid in the left pleural cavity, and the pericardium was distended to an extreme degree. This distention was caused by a quantity of serous fluid, slightly tinged with blood, together with a large coagulum. The heart was rather small, as if thereby compressed, and presenting more fatty deposit than is usually present. The man appeared in tolerably good condition, and about twenty-eight years of age. At first sight the case resembled an example of rupture of a fatty heart; but on further examination there was found, immediately above the origin of the aorta, a small aneurismal sac, and on its most prominent point a minute orifice just sufficient to admit a hair bristle. The sac was peculiar in shape, about the size of a small hazel-nut, with a depression along the centre, so as to give it a mammillated aspect. On examining it internally, the inner and middle coats of the artery were evidently quite deficient in two spots, the pericardium there forming the only covering for the blood. The cause of death was manifestly rupture of the sac and the slow escape of blood into the pericardium. On inquiry it was ascertained that this man had never been ill, had never complained in any way, not even of cough, although he was exposed to great hardship and want. His death seems to have been more rapid than is usual in the analogous cases which have been recorded, as his wife stated that she left him two hours before in perfect health. Dr. Neligan further exhibited the morbid appearances in a similar case, for the opportunity of laying which before the Society he was indebted to his colleague, Dr. Banon. The case occurred in a man named Thomas Murphy, of intemperate habits, a carpenter, who was admitted into Jervis-street Hospital on the 25th of June last, at 1 o'clock P. M. His friends gave the following account of him:—In early life he was subject to epilepsy: the fits ceased about seven years previously. Since then he had suffered constantly from pain in the chest, which had not produced any serious consequences. Half an hour before admission, while at work, he was seized with a sudden pain about the heart, and immediately became insensible. When brought to hospital he was cold, pulse almost imperceptible, and countenance extremely anxious. He was treated with stimu-

lants, and lived for five hours. There was no external lesion; the organs in the abdominal cavity were all normal; the lungs were adherent to the costal pleura and pericardium. Above the semilunar valves there was a small aneurism, about the size of a walnut, and in it a jagged opening sufficient to admit a small probe. The pericardium was distended with serous fluid with coagula. These two cases, then, were precisely similar, but death was much more rapid in the case first narrated, although in it the aneurism and the opening into it were smaller than in that which occurred in Dr. Banon's practice.—*December* 10, 1853.

Cirrhosis of the Liver.—Dr. Gordon presented a recent specimen of cirrhosis of the liver, together with a cast of the organ. The patient from whom it was taken was a boy of about fifteen years of age, who had been suffering from an affection of the liver since he was five years old. At that time he was jaundiced, and was treated for inflammation of the liver; and since then he had been subject to epistaxis and occasional diarrhœa. About two years ago all symptoms of delicate constitution disappeared, and he was apprenticed to a trade, which he steadily followed until June last, when he came to the Whitworth Hospital, complaining of debility and epistaxis. He had a few spots of purpura over his body, but he had neither jaundice, dropsy, pain in the shoulder or side, nor any other symptoms from which disease of the liver could with any degree of certainty be inferred. The skin was dry, harsh, and constantly covered with furfuraceous scales. He was treated in the hospital for six months, and then discharged convalescent. He again applied for admission on the 31st of November last. That morning he had been suddenly seized with hematemesis, and the evening before he had a recurrence of the bleeding from the nose. He was exceedingly faint, and was further weakened by diarrhœa. That night he got up to take a drink, complained of a sudden weakness, went back to bed, and threw up a large quantity of blood, and expired almost immediately.

The liver was of small size, and presented the usual and well-known anatomical character of cirrhosis. The spleen was slightly enlarged. There was neither anasarca nor ascites.—*December* 10, 1853.

Pendulous Tumour removed from the Labium.—Dr. Fleming exhibited a tumour removed from the right labium of a female aged 20, who was admitted into the Richmond Hospital on the 7th of last month. The history she gave of her disease was, that about four months previously she felt a small tumour at the upper end of the labium; that within the period of three months it acquired the magnitude represented in the plate; but that for a month previous to her admission it did not appear to have increased in size. It was extremely distressing to her in walking, and had caused considerable irritability of the bladder. The catamenia were irregular and

uncertain. The tumour was pyriform, but constricted near its centre, the upper portion being about the size of a hen's egg, while the lower was as large as a goose-egg. The integuments were natural in colour, and not adherent to the tumour, a portion of which projected into the vagina, and appeared almost semi-transparent. It had the feel almost everywhere of a firm, solid tumour; but the lower portions of it in one situation gave an obscure sensation of fluctuation. Into this portion a puncture was made, but nothing flowed except a few drops of serum tinged with blood.

The woman being exceedingly anxious to have the tumour removed, the operation was performed soon after her admission into the hospital. A longitudinal division of the integuments was made, when the tumour was found to be contained in a capsule, surrounded by much loose cellular tissue. It was easily separated from the wall of the vagina on the inside, and from the labium on the outside, but a considerable portion of it was then found passing up towards the sacro-sciatic ligament: this was separated chiefly by traction. The wound healed favourably.

A section of the morbid growth showed that it belonged to the class of fibro-cellular tumours; it presented a uniform appearance throughout, and was very vascular; it was of rather loose texture, but it did not contain any cavity. Mr. Lawrence has described this form of tumour of the labium in the Medico-Chirurgical Transactions; and Mr. Paget, in his recently published work on Surgical Pathology, has given a good account of it. When recent, it had very much the aspect of an immense gelatinous polypus, and resembled the gelatinous sarcoma of Rokitansky.—*December* 10, 1853.

Contraction of the left Auriculo-Ventricular Opening.—Dr. Banks exhibited a specimen of this disease, taken from the body of a girl aged 18, who was admitted into the Whitworth Hospital on the 7th of November. She was a dressmaker, and stated that for three years before the time of her admission she had not been in good health. She was peculiarly ill-developed for a person of her age; she did not appear to be more than ten or eleven years of age. She had a badly formed chest, and had never menstruated. Three years before admission she first suffered from palpitation of the heart. On the least muscular exertion her heart beat violently, and her breathing became difficult. She worked at her trade for more than a year, and then applied at a dispensary for medical assistance, but derived no benefit from the treatment that was adopted. About six months before admission the palpitation and difficulty of breathing became so severe that she had to give up her work; and three months ago, for the first time, she perceived her ankles to swell. This gradually increased, and extended until the whole body became anasarcous, and ascites set in. On admission, she presented the following symptoms:—Her countenance was extremely livid, her lips of a deep purple, and her ears of a purplish hue, and the dark livid-

ity of imperfectly decarbonized blood was mixed with the icteroid hue arising from a diseased liver.

On turning our attention to the heart we found the area of dulness greatly increased, particularly towards the right, the impulse abnormally distinct, lower down than natural, and very strong towards the xiphoid cartilage. On placing the hand over the heart, a distinct *frémissement* was perceived, a loud *bruit* taking the place of the first sound, very audible at the apex, but not at the base of the organ; the second sound was inaudible. She laboured under extreme difficulty of breathing, which gradually increased, until at length it amounted to complete orthopnœa. She was then attacked with severe bronchitis; both moist and dry râles were audible over the whole chest, and there was dulness over the inferior and posterior portions of the lungs; she had also diarrhœa. The urine was extremely scanty and high-coloured, had a copious sediment, and contained a notable quantity of bile. Her symptoms increased rapidly, and she died on the 8th of this month.

Autopsy.—On opening the abdomen, we found a considerable amount of effusion into the cavity of the peritoneum. The liver was much enlarged, and gorged with blood. The pericardium contained six or seven ounces of fluid; the heart was considerably enlarged; the walls of the right ventricle were much thickened, and its cavity greatly increased. The right auricle, also, was much enlarged and hypertrophied, and four fingers could easily be passed through the right auriculo-ventricular opening. The walls of the left ventricle were also hypertrophied, but there was a diminution of the natural size of the cavity. The left auriculo-ventricular opening was so much contracted that it barely admitted the end of a probe. The left auricle was thickened, and its lining membrane of a yellow colour.—*December* 10, 1854.

Ulceration of the Intestines.—Dr. Brady exhibited a specimen of ulcerated intestines, taken from the body of a man who died on the sixteenth day of fever. He was a prisoner, committed for a long term, but only in confinement for six months, when he was taken ill. He presented himself at the prison hospital as an out-patient, on the 18th of November last, and stated that, having exposed himself while heated, he had caught a cold. He was admitted into the hospital, and a mild purgative directed, as his bowels had not been freed for several days.

Upon the third day he had the kind of aspect of a man taking fever; his pulse was quick, and he had some heat of skin; but no alarming symptoms occurred until the fifth day, when he was found lying on his back, much prostrated; he was slightly deaf; his skin had assumed a dusky-yellow colour, and he had the greatest repugnance to food of any description; he had also diarrhœa, tenderness on pressure round the umbilicus, and extending from thence across to the right iliac fossa. On placing the stethoscope over the heart, there was scarcely any impulse perceived; the first sound was

slightly heard: it might have been supposed, from its remoteness and weakness, that it was a fœtal heart.

He was immediately ordered stimulants, and for a few days he improved, but the diarrhœa still continued. On the sixth day, when questioned, he wandered in his replies, but this seemed to arise from the deafness; but he never had any regular delirium, subsultus, or stupor. He sank gradually, and died without the occurrence of any nervous symptoms.

On dissection, numerous ulcers were found throughout nearly the whole extent of the ilium, reaching to the very limits of the valve; the typhous deposit was in great quantity, just beginning to shrink and separate in some places, in others detached; the glands, also, were diseased; the heart was pale, soft, and flaccid; the walls of the left ventricle were exceedingly thin, and the cavities were dilated. While the heart was acting in the feeble manner described, the pulse was full and large, but soft: a contrast first alluded to by Dr. Stokes.—*December* 17, 1853.

Foreign Substance passed from the Intestines.—Dr. Corrigan detailed the following case as one highly illustrative of the valuable assistance afforded by the microscope in the diagnosis of disease:—Mary Gray, a cook, was admitted under my care into the Whitworth Hospital on the 6th of December. She came in to be relieved of tape-worms, of which she asserted she had passed several joints within the last four months. She also complained of loss of appetite, sickness in the morning, thirst, headach, and irregular bowels. From her appearance, and the circumstances in which she was placed, it was not by any means probable that she was a malingerer. She had taken turpentine and kousso. She was told to keep the first specimen of the worm that she passed. In a few days she presented herself with a number of fragments, some square, others oblong; they were of a brown colour, and elastic, but tore readily into fibres when pulled laterally; they were obviously not specimens of tænia. There were neither oviducts present at the edges, nor any ovaries in the centre. On examining the abdomen I found an oblong tumour, an inch in diameter, over the region of the sacrum. I then submitted the fragments to microscopical examination, assisted by Dr. Lyons and Dr. Frazer. They were found to present fibres, with curved extremities; and, upon examining with a very high power (magnifying 500 times), the fibres appeared tubular. In their form they seemed closely to resemble the fibres of the ligamentum nuchæ, the appearances of which are so peculiar as to distinguish them from all other fibres, except those occurring in similar structures, as in the strong ligament of the abdomen in the elephant, of the wing in the eagle, and that in the neck of the giraffe. In Queckett's beautiful work there is a drawing of these fibres. I placed under one microscope a portion of this substance, beneath another some of the ligamentum nuchæ, and under a third a portion of arterial tunic. These structures so closely resembled one another that an examina-

tion left no doubt of the nature of the supposed tape-worm. Purgatives were administered every second or third day; and, as far as far as I can discover, no remnant of the tumour is now perceptible. Whether the tumour was formed by portions of this substance, collected in a diverticulum, or in the cæcum, I cannot say. The patient's habit of life, and the circumstances in which she was placed, made it very probable that she was in the habit of swallowing portions of this substance. This instance I thought worthy of record as an example of the assistance that the microscope affords us, and that if a similar case should ever occur where malingering might be suspected, this case might be on record to afford an explanation of symptoms that might otherwise cause an unjust suspicion.—*December* 17, 1853.

Aneurism of the Aorta, opening into the Pericardium—Dr. Gordon exhibited a specimen of aneurism of the thoracic aorta, taken from the body of a lunatic, who had been under daily observation as an inmate of the Richmond Asylum for twenty years. He never during the whole of this long period complained of illness, was a hard-working man, and constantly employed. On Friday last, shortly after having eaten a hearty dinner, he experienced a sense of faintness and sinking in the cardiac region. He was carried to his bed in a state of collapse, but rallied under the use of stimulants. The next morning he seemed better, and partook of some food through the day, but in the evening he sank, and died thirty-eight hours after the commencement of the attack.

Upon examination after death, the pericardium was found to be greatly thickened, and throughout a great portion of its extent its cavity was obliterated by adhesions. The aorta was much diseased, and immediately above the valves was dilated with an aneurismal pouch as large as a goose-egg, and directed downwards and forwards towards the right side; it had given way by a small lacerated opening, through which the blood had escaped into the non-obliterated portion of the sac of the pericardium,—*December* 17, 1853.

Disease of the Aortic Valves.—Dr. M'Dowel detailed the following case:—About ten days ago a man presented himself amongst the extern patients at the Whitworth Hospital, labouring under extreme dyspnœa, and having the appearance of one who had not long to live except something could be immediately done to afford relief. His lips were livid; he breathed with great difficulty, and his voice was inarticulate and weak, so that it was quite impossible to obtain an accurate history of the case. We were, however, able to learn from him that for some months previously he had laboured under palpitation of the heart, and that for a much longer period had had vague sensations referred to the same region. His pulse was full, hard, and throbbing, and was characteristic of patency of the aortic valves, whatever other lesion there might co-exist with it. Over the whole of the sternal region a loud and distinct double bellows murmur was heard. After his admission he at first improved

slightly, but the paroxysms of dyspnœa soon returned, resembling somewhat the intermittent attacks of angina. In one of these, which came on in the night, he suddenly expired.

Autopsy.—On opening the thorax the lungs did not collapse. There was universal bronchitis. The whole of the lining membrane of the bronchal tubes was of a bright violet hue, and the tubes themselves were filled with a viscid and frothy mucus. The heart was generally enlarged; the right cavities were, for the most part, healthy, but the right auriculo-ventricular opening was much dilated, and a firm fibrinous clot extended from the right auricle into the right ventricle. The walls of the left cavities were much thickened, especially those of the left ventricle, which also appeared much longer than natural. There was extensive disease of the aortic valves, allowing free regurgitation. We found, in addition, what I consider to be a congenital malformation of the valves. After the most careful examination I could find only two aortic valves. There is no appearance whatever of a third valve having ever existed. They are of equal size, but nearly double as large as natural, and the diseased condition is different in each; in one the valve is, to a certain extent, torn from its attachments, and must have flapped up and down with the efflux and regurgitation of the blood; while the other presents a very large warty vegetation, is much attenuated, and perforated by two openings of considerable size.

I think that this combination of disease, with malformation of the aortic valves, has not been exhibited at any of our previous meetings. Dr. Graves formerly laid before the Society a case in which there existed but two valves, but they were not in a diseased condition. An instance of it was detailed before the London Pathological Society, and some remarks have been made on the subject by Dr. Peacock, of London; it has also been discussed by the Edinburgh Pathological Society. The malformation has been supposed to be not an original, but an acquired one, namely, as the result of disease, according to some, existing in the fœtus in utero; according to others, of disease occurring in early childhood, by which the septum between the valves is broken through; but in the specimen before the Society, the circumstance of the two valves being of equal size militates against these views. I agree in the opinion that has been stated, that this malformation, whether as in this case, original, or acquired as the result of disease, must produce a great liability to further change.—*January 7th*, 1854.

Scrofulous Disease of the Knee Joint in its early stage.—Mr. Hamilton gave the following account of this case, and showed the recent specimen:—

A young boy was admitted, about five months ago, into the Richmond Hospital, complaining of an affection of the knee; he walked a little lame; there was some elastic puffy swelling on both sides of the patella, slightly increased heat of the joint, and slight pain on motion; after he had been in hospital for a couple of days, he

complained of very violent pain in the left infra-clavicular region; he was evidently suffering under an acute attack of pleuritis; there was a very loud *frottement*, and mixed with it signs of the existence of a cavity, viz.,—gargouillement, cavernous respiration, and considerable dulness on percussion. After the acute symptoms were subdued, he went through the ordinary course of phthisis, and died on Thursday last. The knee during this period underwent no change, the more fatal disease seeming to arrest the progress of the other. On making a section of the joint after death, it was found that the synovial membrane was converted into a fleshy substance, of a yellowish pink colour; it extended over the articular cartilages, but was more remarkable on the condyles of the femur, than on those of the tibia. The cartilage was not ulcerated in any point, nor was there any alteration of the synovia; the disease consisted merely in a thickening of the synovial membrane. The osseous tissue was more vascular, and a little softer than natural.—*January* 7, 1854.

Cirrhosis of the Liver.—Dr. Banks detailed the case of a boy aged 14, who was admitted into the Whitworth Hospital in February, 1853, having been delicate for a considerable time previous to his admission, but no satisfactory account could be obtained of his symptoms. He was anemic and much emaciated; his limbs were small and very thin, and his abdomen exceedingly enlarged. On examination, this enlargement was found to be caused by two tumours,—the one on the right side of the abdomen, extending to below the umbilicus; the other on the left, reaching to the crest of the ilium; the former, an enlarged liver; the latter, an hypertrophied spleen. He had attacks of epistaxis, recurring about every ten days, and on each occasion lost from three to six ounces of blood. The blood was frequently examined by Drs. Lyons and Frazer, but without finding any excess of white corpuscles. Occasionally spots of purpura appeared over his body. On the 23rd of December he complained of uneasiness about the throat; his voice having been hoarse for some time previously; and in the evening he had dyspnœa and stridulous breathing, and the neck was swollen, but there was no distinct fluctuation to be felt. On Wednesday last he became delirious, towards evening comatose, and died the following day.

On examining the body, a considerable amount of disease was found. There was copious effusion into the sac of the arachnoid and into the ventricles, and the brain was rather softer than natural. In front of the larynx there was some purulent matter, so thick that it could with difficulty be removed with a syringe. The interior of the larynx presented a livid and vascular appearance, which extended into the bronchial tubes. In the cavity of the abdomen there was not more than one or two ounces of fluid; the liver, which was of great size and density, presented a striking specimen of cirrhosis; it weighed four pounds and a half. The spleen also was very large, and of a dark violet hue; it was very dense, and admitted of

being cut into very thin slices, which had a granular appearance; it was adherent throughout a great extent to the stomach, and weighed two pounds and three quarters. In this case, Dr. Banks remarked, the main features of interest were the occurrence of cirrhosis of the liver at so early an age, and the size of the organ at so advanced a stage of the disease.

Some researches have recently been published by Christiansen of Copenhagen on this subject. In all his cases there was hemorrhage from the bowels, tormina, and on examination after death blood was found in the intestinal canal. None of these symptoms were present in the case before the Society.—*January* 7, 1854.

Glandular Tumour of the Neck.—Professor R. W. Smith gave the following account of a tumour removed after death from the neck of a female aged 64. The patient who was the subject of this disease, stated, that twelve years before the date of her admission (September, 1853) into the Richmond Hospital, a small movable and painless tumour formed upon the right side of her neck near its centre; its growth was very slow; at the end of four years it was not larger than a small egg; at that period she came into the hospital for a short time, but I do not know what opinion was entertained of the nature of the tumour; no attempt, however, was made to remove it by operation. From year to year it gradually enlarged, and several smaller tumours formed along the upper part of its circumference; these contained fluid, and were punctured upon several occasions. The great bulk of the original disease was solid and hard, and gradually acquired an uneven surface.

When she was admitted into the hospital, in September last, the tumour was larger than a full-sized orange, remarkably firm to the feel, nodulated and immovable in the vertical direction, although it could be rather freely moved transversly. Around its base were numerous cysts, evidently containing fluid; they were now of considerable size, and along with the solid portion of the tumour, constituted a morbid growth, which reached upwards to the mastoid process, and forwards to the middle line of the neck; there was now also severe pain, especially distressing at night, and some dyspnœa from the interference of the tumour with the motions of the larynx. These cysts were punctured from time to time, by which the size of the tumour was much diminished, and the pain and distress of breathing relieved.

A consultation was held upon the case, when it was decided not to attempt the removal of the disease by operation, as the tumour evidently had some very deep attachments, which would most probably have rendered the completion of the operation impossible. The skin was also so thin, and so closely united to the surface of the tumour, that it would have been necessary to have removed so great an extent of it, that not more than half the wound could have been covered. The advanced age of the patient, and her disinclination to submit to operation, were also considered, and, along with the other

circumstances which have been mentioned, led to the decision against attempting it, although in all probability the disease was not of a malignant character. Upon this point I was unable to form a positive opinion, but was inclined to believe in the non-malignant nature of the tumour from the slowness of its growth, the absence of any evidence of contamination of the system, the unimpaired state of the woman's health for so long a period, and from the circumstance that, although the cysts, after having been punctured, suppurated and formed ulcers upon more than one occasion, yet these ulcers healed favourably, and never showed any tendency to produce fungous growths.

For some time before death the pain was excessively severe; and upon one occasion a protracted attack of vomiting occurred, which, however, completely yielded to treatment. Towards the end of December, suffocative catarrh established itself, under which the patient sank, and died a few days since.

Upon examination after death, the tumour (which was covered by the sterno-mastoid muscle) was found to have passed down among the deep structures of the neck, and to have become closely adherent to the upper part of the carotid artery; it reached upwards to the mastoid process, and was continuous with the parotid gland behind the angle of the jaw. In consequence of the destruction of its cystic portion by suppuration, as already mentioned, it was not much more than half as large as it was when the woman was admitted into the hospital.

The structure of the tumour was carefully examined by Dr. Lyons. It was found to present a strong fibrous basis, in parts hard, dense, and shining; a large number of loculi existed in it, varying in size from a couple of lines in diameter to half an inch; they were filled with a soft, granular matter, varying in colour from pink to red, and having very much the appearance of mashed strawberries. Under the microscope there was observed an abundance of granular matter; bodies of the size of small cells, isolated and aggregated; quantities of blood corpuscles; also blood-vessels; free and nucleated cells, some isolated, others grouped in various ways. The next element, found in abundance, showed what the nature of the tumour was, viz., masses of a tubular appearance, filled interiorly with cells. These masses were evidently the broken-down tubes of a glandular structure, existing through the strawberry-like mass, leaving no doubt that the tumour originated in the cervical glands, which subsequently were broken down by the infiltration of various matters. In one portion there existed a calcareous structure, a form of degeneration to which these tumours are liable.—*January 7th*, 1854.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

SESSION 1853–4.

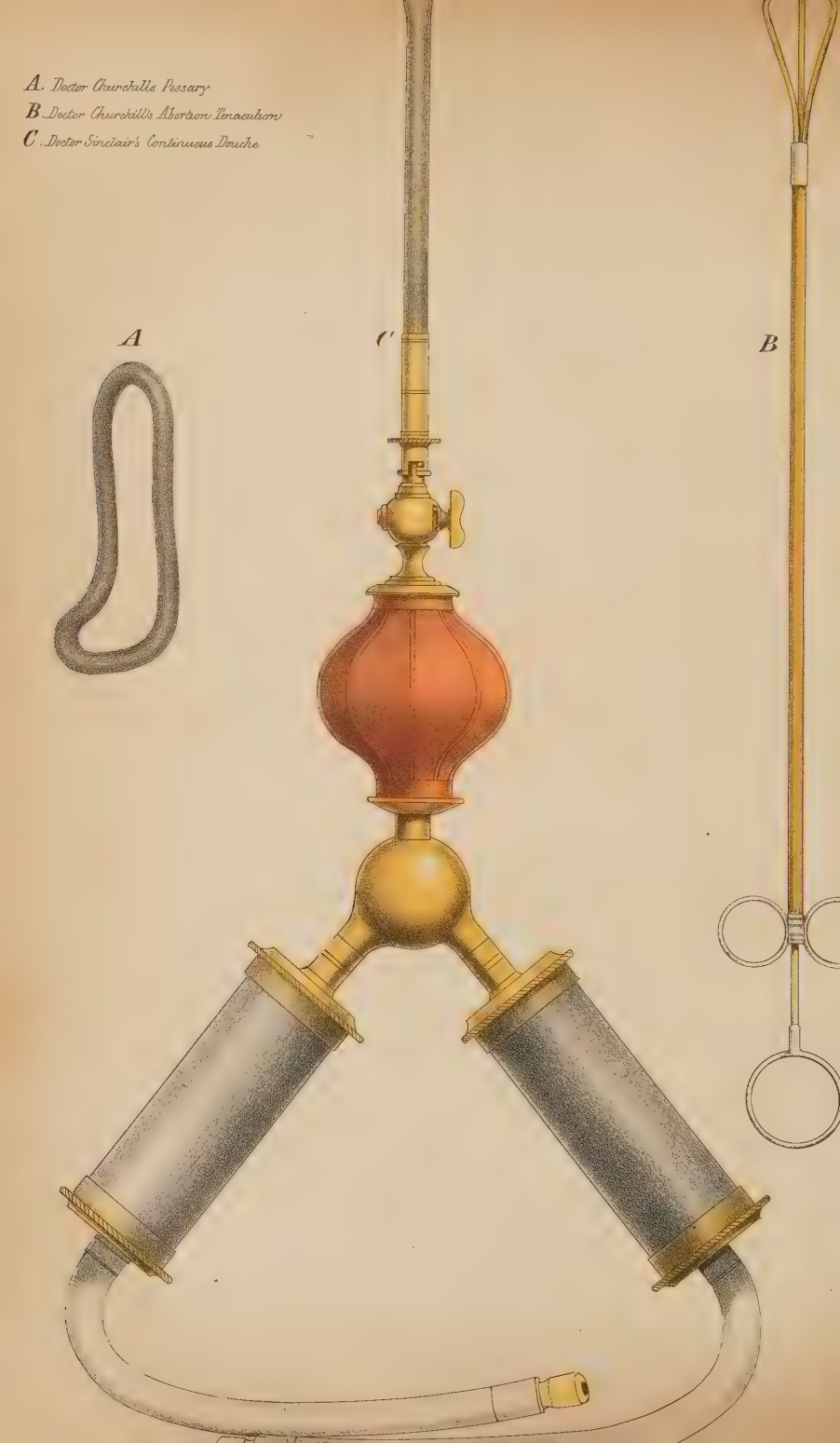
First Meeting, Tuesday, 29th November, 1853.

Dr. Churchill delivered an Introductory Address from the Chair.

Dr. M'Clintock exhibited a specimen of a large fibrous tumour in the right labium, the removal of which had been performed by Dr. Brunker of Dundalk. The morbid growth, which equalled the size of an orange, was perfectly globular, and extremely dense and close in structure. At its most dependent part the labium was ulcerated over an extent of surface that a dollar would cover; this ulceration involved the entire thickness of the labium covering the tumour, and exposed the surface of the latter. The patient from whom this labium externum was removed was about forty years of age, and had borne several children. Fifteen years had elapsed since she first perceived any enlargement of the part, and she had experienced no sort of annoyance from it, beyond what simply resulted from its weight and bulk. Dr. M'Clintock drew attention to the fact of its having been the right labium in which the tumour was situated; adding, that in his own, and in the recorded experience of Dr. Robert Lee, the right, and not the left labium, had almost invariably been the one, to which a preference was given by morbid growths, whether of a fibrous nature, or of the encysted and much more common kind.

Dr. M'Clintock next related the history of a case of vaginal polypus. The subject of it was a healthy, stout woman, aged 23, who was seven months pregnant of her first child. Upon making some unusual exertion in running she felt a tumour descend from the vagina, and remain beyond the vulva. Being servant in a house where Dr. M'Clintock was at the time in attendance, he was asked to look at her, and on examination found that a polypus of considerable size, having its origin from the posterior wall of the vagina, had become prolapsed beyond the ostium vaginæ, and was there retained in a condition bordering on strangulation, thus productive of much pain to the patient. With very little trouble it was returned within the vagina, when all annoyance ceased. As this woman had no place of her own to go to during the removal of the tumour, admission was obtained for her into the chronic ward of the Lying-in Hospital, where Dr. Shekleton applied a ligature around the pedicle in the usual manner, and the polypus came away in a few days without any unpleasant symptom. She went to the full term, had an easy labour, and most favourable convalescence. Dr. M'Clintock said that, with the permission of Dr. Shekleton, he was induced

A. Doctor Churchills Pessary
B. Doctor Churchill's Abortion Evacuator
C. Doctor Sinclair's Continuous Douche



to bring this case before the Society, as polypus of the vagina was of such very rare occurrence.

Dr. Churchill then exhibited to the Society an instrument which he thought might be useful for removing the ovum when it protrudes just through the os uteri in cases of abortion, and especially in those cases where an undilatable condition of the vagina forbids the introduction of more than one finger. The instrument[a] consists of a steel rod (electro-plated) passing through an elastic catheter. One end of the steel rod is divided into three prongs, curved at their points, and divaricating, but closed by sliding the catheter towards the end. At the upper end, the catheter is guarded by a silver rim, and at the lower, it is furnished with rings, by which it can be moved up and down with one hand. The instrument, guided by the forefinger, is to be passed up to the protruding ovum, and the catheter being withdrawn so as to allow the points to separate as widely as needed, the ovum is to be carefully caught, and the instrument again closed withdrawn. If the ovum be not very much decayed, or very adherent, it will be brought away. Through the kindness of Dr. Shekleton an opportunity was afforded of testing the instrument after the meeting of the Society, and, although the ovum was much decomposed, it was brought away with the greatest facility.

Dr. Churchill also laid before the Society a new form of pessary[b], which acts by distending the vagina upwards. It is made of rod gutta percha, about a sixth of an inch in diameter, and forms an arch at the upper and lower extremity. The lower extremity is bent forward, so that a lateral view somewhat resembles the letter L, with the posterior angle rounded. The upper arch is to be passed behind the os uteri, and the lower is seated on the anterior edge of the perineum. The size of the instrument must be adapted to each patient. Dr. Churchill mentioned that he had used it in cases of prolapsus uteri, and in one case of retro-version, with great benefit.

Second Meeting, 31st of December, 1853.

Dr. George Johnston laid before the Society a case which came under his notice while "assistant" in the Dublin Lying-in Hospital, and which, from its very unusual occurrence, would, he had no doubt, be considered of some interest,—it was "inversio uteri," taking place during labour.

Esther Page, aged 19, a thin, delicate-looking woman, of fair complexion, was delivered of her first child, a healthy girl, on the 31st of July, 1851. Her labour so far was easy, and of about six hours' duration. The gentleman in attendance, after having tied and separated the funis, had maintained the contraction of the uterus with the hand above the fundus—in accordance with the usual

[a] See Plate 2 B. [b] See Plate 2 A.

practice of the hospital—for about a quarter of an hour, when finding a tendency to "draining," he increased his pressure; but, as he said, not nearly to the extent it has been, on frequent occasions, found necessary to employ, in order to assist in the expulsion of the placenta, or restrain hemorrhage. The uterus was felt suddenly to yield and recede from his grasp, and he immediately saw it expelled from the vagina, an inverted mass, with the placenta still attached. Dr. Johnston was at once sent for; on his arrival he found the woman pallid, exceedingly anxious, complaining of considerable pain, and a sensation of sinking; the pulse was weak, indeed scarcely to be felt.

Examination proved the uterus to be inverted with the placenta attached to its fundus; the funis was of the ordinary length, and there was then no hemorrhage. Recollecting that the lapse of every minute was of consequence, Dr. Johnston proceeded to replace it at once, which he accomplished in the following way:—He first detached the placenta,—a matter of no difficulty, there being no morbid adhesion,—and he was pleased to find that after it was separated, no hemorrhage followed, owing, he considered, to the constriction the vessels underwent at the cervix; he then restored the cervical portion of the inverted organ, which was easily returned within the vagina, and re-inverted as far as the body; but it was some time (five to seven minutes) before he could reduce the fundus, which required the fingers to be held in a flexed condition against it, while he made counter-pressure with the left hand above the pubis. Some wine had been given to the patient to relieve the sensation of exhaustion, but it was not till the uterus had been restored to its natural state that she could be persuaded her immediate dissolution was not close at hand; ergot was afterwards administered, and she was kept longer in the horizontal position than ordinarily. Milk was secreted on the third day; she made a perfect recovery, and was discharged quite well.

Dr. George Johnston then proceeded to remark as follows:—

"That inversion of the uterus very rarely takes place, is universally allowed by all obstetric writers.

"Denman, Rigby, and Churchill, all agree in believing it to be an accident of 'rare occurrence.'

"Ashwell says—'It *is most rare*,' and in proof states, that in more than 8000 labours occurring in Guy's Hospital, and upwards of 1600 in another charity, there was not a single instance of it; if others were wanting, the records of our own hospital show (according to Hardy and M'Clintock) that, during the masterships of Doctors Clarke, Labatt, Collins, Kennedy, and Johnson, the number of deliveries amounting to 75,911, not one case of this description occurred; and I may add that, subsequent to that period, for three years and eight months of the management of the present master, Dr. Shekleton, 7336 patients were delivered previous to the occurrence of the one I have just related, so that in 83,247 deliveries, there was not a single instance of its being met with.

"But, 'inversio uteri,' although rare, is nevertheless considered to be one of the most formidable complications that affects the lying-in patient, being attended with very alarming symptoms, and threatening the most serious consequences. For instance, the patient is found complaining of excruciating pain, with a sense of sinking and extreme exhaustion; an almost imperceptible pulse; a countenance expressive of great anxiety and collapse, together with nausea, vomiting, and sometimes hemorrhage and convulsions; in fact, the symptoms in a case of inversion resemble in many points those attendant on rupture of the uterus; but this former accident can be generally distinguished from rupture by the period at which it takes place, viz., after the birth of the child; by the sudden recession of the round, circumscribed tumour, if the uterus be grasped after the delivery of the child, or its absence, when searched for. All doubt is set at rest by finding a globular fleshy body occupying the os uteri, if the inversion be partial; or protruding quite through the os and vulva, if it be complete; thus forming, as it were, a sac lined by peritoneum, a diverticulum from or extension of the abdominal cavity, filled by the small intestines. It is this sudden evacuation of so large a portion of the contents of the abdomen, which produces that severe shock on the nervous system, from which there is great danger the patient may not rally, death in more than one instance having been the result.

"This accident has been attributed to various causes, viz.:—

"1. To undue pulling at the funis for the purpose of extracting the placenta before it is completely separated.

"2. To an over-amount of pressure with the hand on the fundus uteri.

"3. To too rapid delivery, especially if the woman be standing at the moment of the quick expulsion of the child.

"4. To the cord being too short, or twisted round the neck or body of the child.

"5. To violent straining during the last pains; violent efforts, as coughing, vomiting, sneezing, or by sudden attempts to rise in bed, by which the abdominal muscles are put into violent action.

"6. It may take place spontaneously.

"That it may be produced by the two first causes, no doubt at all exists, particularly the first—'if,' as Dr. Ramsbotham observes, 'the placenta be adherent to the fundus; if the adhesion be strong; if the funis does not give way to the force applied to it; and if the uterus be flaccid, and has not contracted round the mass.' And with regard to the second, Rigby goes so far as to say: 'If immediately after delivery, especially where the uterus has been suddenly emptied of its contents, any *force* be applied to the fundus, it may easily be pushed down into the cavity.'

"That it may result from the occurrence of too rapid delivery, especially while the woman is in the erect posture, is possible: but such cases of delivery have frequently come under the notice of

those connected with the Dublin Lying-in Hospital, and yet no such accident has taken place.

"As to shortness of the cord, or the twisting of it round the neck of the child, numerous instances of the kind could be brought forward where there was no attempt at inversion.

"That violent strainings or efforts, or sudden attempts to rise in bed, have been the cause of this accident, instances are given by Cazeaux: one, where complete inversion took place nine hours after delivery, from rising to the night-chair; another, where complete inversion resulted twelve days after delivery, in consequence of straining efforts at stool. Lastly, that it occurs spontaneously; an instance is given in the author's notes on Denman, where, after the funis had been divided, and the doctor engaged with the child, not the slightest extension having been made on the cord—'in fact, it had not been touched by the hand'—the uterus was inverted, with the placenta attached.

"Dr. Rigby, in giving a case of this description, says: 'The descent was so rapid, and forcible through the os externum, that it would have been quite impossible to have resisted the unnatural action by which the organ was carried down;' and Ruysch saw it take place after the expulsion of the placenta, although delivery had occurred in the most favourable way.

"The predisposing causes of inversion are, according to Radford, owing to atony of the uterus, or active constriction of one part, with an atonic condition of another.

"Dr. Tyler Smith says it depends upon an irregularly active and a very unusual condition of the uterus, by which the fundus is first depressed, then carried downwards by the annular contraction of the organ, and finally completely inverted.

"Cazeaux states, that the uterus, being for a moment in a condition of inertia, the pressure or weight of the intestinal mass upon the fundus may depress it like the bottom of a bottle; and when the placenta is inserted directly on the superior part of the uterus, its weight alone may (in a case of complete inertia) draw down the fundus. This, he says, however, generally corrects itself by the contraction of the viscus; but if (this depression not being perceived) traction is made on the cord, or pressure on the fundus, it may be greatly increased, and converted into complete inversion: this was probably the cause in the case just narrated.

"With regard to the treatment of this accident, it is universally agreed upon, that the immediate reduction of the inversion is the best practice, when 'we find'—as Denman remarks—'no difficulty, or very little, in restoring the uterus to its perfectly proper situation.' But difference of opinion exists as to the mode of acting when the placenta is still adherent to the uterus; some recommending the returning of the tumour before detaching it. For example, Newenham advises 'returning the uterus first, and exciting it to throw off the placenta afterwards in the usual way; 'which,' he says, 'will have good effect in bringing on that regular and natural con-

traction which is the hope of the practitioner and the safety of the patient: that the removal of the placenta first, in order to diminish the bulk of the inverted fundus, cannot possibly be attended with any beneficial consequences, whilst the irritation induced by such a proceeding will necessarily tend to bring on those pressing-down efforts which would present a material obstacle to its reduction, and would increase the hemorrhage at a period when every ounce of blood is of infinite importance.' Denman goes half way with the above maxim, for he says—'If the placenta be partly separated, it will be proper to finish the separation before we attempt to replace the uterus; but if the placenta should wholly adhere, it will be better to replace the uterus before we endeavour to separate the placenta.' And his reason he asserts to be,—'That while we are separating the placenta, the cervix of the uterus is speedily contracting, and the difficulty of replacing it increasing, which is a far greater evil than a retained placenta.'

"Now, though Dr. Newnham's and Dr. Denman's ideas may be perfectly correct in cases where the uterus is partially inverted, that is, where the fundus only is displaced, nevertheless, in cases of complete inversion, although we find Dr. Williams saying, that 'the organ, with the placenta still adhering, was promptly returned to its proper situation,' Dr. Merriman states, that the mass of the placenta was the chief cause of the difficulty in a case which he has related. 'I tried,' says he, 'to effect the reduction without removing the placenta, but could by no possibility accomplish it till I had first separated the placenta; this being effected, I succeeded to my entire satisfaction in re-inverting the fundus.'

"For my part I am of opinion that, in cases of complete inversion, it is the best and simplest treatment to detach the placenta in the first instance (which is easily, and in a very short time accomplished), and then to re-invert the uterus, a matter also of but little difficulty, as it is then much diminished in bulk. The objection that Denman raises to this practice is not, I conceive, a very strong one; for 'the time' it takes to peel off a placenta, under these circumstances would be far less than that which would be occupied in trying to force so large a body as the placenta with the uterus back through the vagina and os. As to the occurrence of an increase of hemorrhage from thus proceeding, I consider there is no danger, or at most but trifling. Even Dr. Denman, in the history of the case, where he pursued this line of treatment, informs us, that 'the hemorrhage was not profuse,' and 'that regular and natural contraction,' which, as Dr. Newenham observes, 'is the hope of the practitioner, and the safety of the patient,' is, I think, more likely to be produced when the uterus is empty, than when it still contains the foreign body, which its efforts to expel had been the cause of the production of that very displacement we are called upon to remedy. The placenta having been detached, we proceed to reduce the tumour by grasping the body of the organ, and pushing it with the vagina in the axis of that passage, continuing this pressure till

we meet the os, when the first obstruction presents itself; but, by the steady maintenance of our pressure, and by moulding, if I may so express myself, gradually and progressively, first, the cervix, and then the body through the os, we complete the reduction by pushing, lastly, the fundus upwards.

"With regard to the manner in which the last stage of the operation is completed, one recommends the fingers to be held in the form of a cone, another spread out at equal distances; but I held them in a flexed condition, pressed against the displaced fundus, and continued steady pressure till that portion was righted; and, in fine, held the hand in the cavity of the uterus, till it was expelled by contraction.

"In the above case I made counter-pressure over the pubis, finding the uterus yield so much from my reach, owing to the relaxed state of the vagina; and my object in administering the ergot was to secure uniform contraction.

"It is said by Cazeaux that inversion of the uterus having once taken place in a labour, there is a tendency to its recurrence at a subsequent delivery, and I regret that in this instance an opportunity has not been afforded of testing this fact."

Dr. E. B. Sinclair laid before the Society another example of the induction of premature labour by means of the water douche. He remarked, that in the Lancet for October 2nd, 1852, a paper was published by Dr. Tyler Smith upon this subject, in which a detailed report of a case was given, where labour was induced by this means. Dr. Smith, before stating the history of this case, remarks that it was the first of the kind that had appeared in England; and Dr. Sinclair observed, that if we had not anticipated England in this matter, we had, at least, followed very close in her wake, inasmuch as Dr. Smith's patient was delivered on the 6th of September, 1852, and four days after, viz. the 10th of the same month, the first douche was applied in the Rotundo Hospital, in the case of the woman, a report of which was presented to the Society by Dr. Atthill at its first meeting last session. Dr. Sinclair further remarked that the douche was used in the Rotundo Hospital a second time for induction of labour in January, 1853, with the history of which operation Dr. Shekleton favoured the Society, and that it was employed a third time for a similar purpose, in the same institution, in the following September; the history of which third operation he then proposed to read to the Society. "The subject of the case," he continued, "now under consideration, was J. M'L., aged 21, of low stature (hardly more than four feet five inches in height), with short arms, diminutive hands, and the same conformation of the lower extremities and feet. She carried herself well, and there was no visible deformity.

"This woman was first admitted into the Rotundo Hospital, as a private patient, on the 8th of February, 1853, at full term of her first child, and on this admission she had a very laborious accouchement.

"The following is an account of her first labour:—She was brought into hospital with the os fully dilated; said to have been in labour twenty-six hours prior to admission; and a considerable period of that time must, doubtless, have been occupied by the second stage. It was found on examination, that the cause of the delay was extreme narrowing of the conjugate of the brim, which was hardly two inches in width, just sufficient to hold the tops of the first and second fingers alongside each other, with their edges directed antero-posteriorly, and not admitting the tip of the third to the same level with the first and second; the sacro-vertebral angle jutted very forward; the transverse diameter seemed to be of the standard measure, perhaps larger; in fact, it was a case of rickety pelvis.

"There being no possibility of her giving birth to a living child, she was at once placed under chloroform, the head perforated, and some of the cerebrum having been evacuated, she was left alone for a time in order that uterine action might mould the head more within reach of the crotchet. With this instrument labour was completed after upwards of thirty hours' duration, and not without considerable difficulty, although the child, a female, was under average size.

"She went out well on the tenth day. The nature of her case was fully explained to her, and the fact impressed upon her that she could never give birth to a living child at full term. Indeed, we considered it unlikely that, should we delay to bring on premature labour much beyond the sixth month, the head would not pass the brim without being lessened; she was, therefore, warned, should she again become pregnant, to make early application to the hospital.

"We saw no more of her till September last, when she made her appearance, accompanied by her mother. She then asserted that she had menstruated for the last time at the end of March, and that she considered herself in her sixth month of pregnancy. It was urged that she should enter the hospital at once, and place herself under our observation, that the operation of induction might not be too far delayed; but neither she nor her mother could be convinced of the necessity of so doing, and they went away.

"I afterwards found out that they left us to consult an eminent obstetric physician; and when he informed them of the importance of being guided by our directions, the patient returned and placed herself under our care.

"Accordingly, on the 26th of September, she was admitted a second time into the hospital, then in about the first portion of the seventh month of gestation; fœtal heart audible. Fearing to delay longer, it was determined forthwith to induce labour, and on the 28th of the same month, at 12½ P.M., by the direction of Dr. Shekleton, I applied the first douche.

"It had been intended, when the next case for induction presented itself, to employ the stomach pump for injecting the water; but Mr. Robertson, surgical instrument maker, of Bachelor's-walk,

in this city, having sent us a bulb syringe, we were anxious to try it, and it was used at the first application, when about two gallons of tepid water were thrown against the os, in the same manner as in the case of Mary Fells, reported in our Transactions for last session; but with this difference, that it was so arranged our patient was not put to the inconvenience of undressing. This application had no marked effect upon the state of the os, save the displacement of a portion of the operculum.

"The bulb syringe employed at this first application is constructed in a manner similar to the cylindrical form of apparatus used by Professor Simpson, the difference being merely that an elastic bulb occupies the place of the cylinder. But if the syphon Dr. Kennedy made use of at the last operation in the hospital (in Mary Fells' case) was distressing to the hand, the bulb employed now was doubly so. It took a considerable time to administer the bath with this instrument; the stream was very much interrupted; no little time was lost waiting for the bulb to fill, previous to discharging its contents; and the power required to accomplish this was very great.

"Dr. Ogle, of Cambridge, who was at the time attending upon the practice of the Institution, and who was kind enough to assist me at the operation, suggested the use of two bulbs and two efferent tubes, ending in one discharge-pipe, instead of the single adjustment, whereby all the labour would not be thrown upon one hand, but each could relieve the other by alternate pressure, and one bulb would be in the process of being filled, while the other was being emptied,—thus saving time. However, if this were accomplished, the stream would be still intermittent; and I was anxious to contrive some instrument which would more nearly imitate the original douche of Kiwisch, whereby the stream might be made continuous, the labour of using it lessened, the force still considerable; the time economized; and yet the instrument not so large as to render it cumbersome. I consequently got Mr. Robertson to construct an apparatus, of which the following is a description[a]:—

"Two cylinders, about five inches in length, and one and a half in diameter, with an arrangement of valves the same as in the old form of cylindrical enema apparatus, and with efferent tubes of any convenient length, communicate by means of two metal tubes at their distal ends,—each tube being about one and a half inches in length, and half an inch in diameter, with a globular metal chamber, one inch in diameter. These short metal tubes enter the small globular metal chamber at an angle sufficiently great to keep the cylinders far enough apart from each other, in order that the hands may have plenty of room to work them. The small globular metal chamber, with which the distal tubes of the cylinders communicate, terminates in a single straight tube, one inch and a half long, and half an inch in diameter; at the end of which tube is a collar, and a valve opening forwards. To the collar of this latter tube is at-

[a] See Plate 2 C.

tached a globular vulcanized India-rubber reservoir, or chamber, about two inches and a half in diameter; and to the distal end of this large elastic chamber is fixed a metal collar, in which there is another valve opening forwards; from the collar proceeds a stop-cock and nozzle, and to the nozzle can be attached, at pleasure, any form of terminating vaginal pipe. By means of this contrivance a constant current is kept up, when once the large India-rubber reservoir is filled; and the stream (if the diameter of the vaginal pipe be somewhat less than that of the nozzle) can be made to play very forcibly against the os; besides, a large quantity of water can be used in a very short space of time. The distress of working it is not near so great as in the old forms of apparatus; the cylinders being just large enough to comfortably fill the hand, it is not cramped; and it is found unnecessary to empty them completely at each compression.

"To return to the case. The douche was not repeated till the 30th, when I used this double cylinder and bulb apparatus. At half-past 12 in the afternoon, two gallons of tepid water, followed by two of cold, were then thrown against the os, in a continuous stream, very rapidly, and with much less distress to the person pumping than on the last application. She felt sick during the flow of the cold stream, had a slight rigor, and after it the os was larger than sixpence; the membranes were felt entire.

"The third douche was given at 5 o'clock, P. M., the same day; about two gallons of tepid water were then used with the same instrument; she complained of labour-pain immediately after it; she suffered much from nausea during the flow of the water, and at its termination the os was found the size of half-a-crown; but the presentation, from the great amount of liquor amnii, could not be felt. Labour having now set in, the cold water was not injected.

"At 10, P. M., the first stage had only progressed one-third; the dilating pains being inefficient, from hypertrophy of the waters, but the os was dilatable. Accordingly, the membranes were ruptured, and two doses of ergot administered in the usual way. The breech was now felt presenting; and more satisfactory pains setting in, it gradually came within reach, when, with the finger between the thigh and abdomen of the fœtus, assistance was given with each uterine effort. She was delivered at 12 at night, on the 30th (seven hours and a half after the last douche), of a small, living, male child; so small that it appeared not quite so large as a fœtus at six months; and, notwithstanding its diminutive size, the head was brought through the brim with difficulty, so much force being necessary that I feared lest I might do it some injury. The placenta came away in a few minutes; there was no tendency to hemorrhage. The woman progressed without a single bad symptom, and was discharged on the tenth day well, but the child lived only four hours."

Dr. Sinclair then took a brief survey of some of the recent cases of induction of premature labour by means of the douche. He drew

attention to Dr. Tyler Smith's case, before alluded to, in which the mode of administering the douche was the same as the original method, by means of a syphon from a height, but differing so far that cold water was alternated with hot, and that in this case labour may be said to have been induced after the fourth application.

To Dr. Atthill's case, where the douche was given in the same way as in the above, save there was no alternation of hot and cold water, twelve douches were found necessary; "which number is stated by Dr. Arneth, of Vienna, to have been the average" in Continental practice.

To Dr. Lacy's case, reported in the Lancet, for December 4th, 1852, where, though the douche was administered precisely similar in every respect as in Dr. Smith's, yet six applications were necessary.

To the case reported by Dr. Shekleton in the Proceedings of the Society, where only three douches were necessary, which was the number used in the one just narrated, and he remarked on the variability of the number of baths necessary to accomplish the purpose; calling attention to the fact that in those cases operated upon by the hand syringe, labour was induced more rapidly than in those treated according to the original system. He also observed, that on looking over these cases, he was inclined to attach but little importance to the alternation of hot and cold water, and that he did not consider that any nervous shock so caused, had much share in dilating the os. It was true that some discomfort was felt in Dr. Smith's case when the hot and cold streams commenced to flow, and that at the commencement of the cold current, on one occasion, hysterical symptoms supervening, it had to be discontinued. It was also true that in Dr. Lacy's case discomfort was experienced when the cold current came against the uterus; and that in the case he had narrated nausea and a slight rigor came on when the cold water began to play; but on the second application, when no cold water was used, the patient was *more* nauseated.

Dr. Sinclair considered all these symptoms might have been induced by the premature dilatation itself, and were not precursory, or the cause of that dilatation. With regard to the manner in which the douches gave rise to dilatation of the os, he thought the following *rationale* was, perhaps, the most correct :—That the action of the douche differs only from the first stage of labour in that the mechanical power is applied from without, and that the waters impelled against the os, by external force, have not a membrane covering them, and that in consequence of their not being thus confined, not only is the aid of an adaptable wedge secured, but there is also the advantage of a gentle force to detach the membranes to some extent from around the cervix; and to these forces a considerable amount of assistance may be given by keeping the water, during the administration of the douche, confined to a certain extent in the vagina, thereby distending that canal, whose walls, from their pe-

culiar attachment to the cervix uteri, must, under these circumstances, exert some influence, by tension from their points of attachment, towards inducing dilatation.

Dr. Sinclair said, that, in the case he had just recited, as well as in the one reported by Dr. Shekleton, where he also operated by Dr. Shekleton's permission and direction, he endeavoured, as much as possible, to retain the water in the vagina (which he said "could be readily accomplished by the hand that directs the stream against the os, while the woman lies on the left side with her hips over the edge of the bed"); and he permitted the fluid to escape from the vagina by small jets, so as to prevent any *over-distention* of that canal. Dr. Sinclair was of opinion that, besides aiding in the dilatation of the os, the retention of the water thus in the vagina had also the effect of, to a certain extent, preparing that passage for the untimely transit of the fœtus; and that the elastic force thus exerted upon the water by this proceeding compels it more rapidly to insinuate itself between the cervix uteri and the membranes. Dr. Sinclair conceived, that if these observations were correct—and he believed them to be so—the hand-syringe was a much more efficacious instrument than the old form of self-acting syphon; for, with the latter form of douche, the maintenance of the waters in the vagina, which he deemed to be "the chief cause of the rapid advent of labour in both the cases he operated upon," could not be kept up to distend that canal sufficiently, inasmuch as, when the passage was *moderately* full, the current would be arrested; whereas any amount of distending force required may be obtained by means of the former or hand-syringe; but he said that the necessity of this measure increased much the labour of pumping, which he found the instrument he had just exhibited to the Society would, to a certain extent, obviate; and it enjoyed the same advantages as the single cylinder machine, in being applicable to every purpose for which that form of instrument was used, except enemata. Dr. Sinclair was sure that in post-portal hemorrhages it would be found most advantageous, from the rapidity of its action, and the large dash of cold water it could be caused to inject. The apparatus could be made portable by means of having the parts so constructed as to screw and unscrew.

Dr. Sinclair drew attention to the report of the proceedings of a meeting of the Medical and Chirurgical Society of England, contained in the Lancet for Feb. 19th, 1853, when Dr. Lee brought under the consideration of that Society the propriety of inducing labour in cases of extreme deformity, *before the seventh month.* In the case he had detailed, labour was induced at about six months and a half; and he was almost positive that, had the child been of the average standard of a fœtus at that term, he should not have been able to have delivered it alive; fortunately, there was dropsy of the amnion, and the child was puny for its age; in addition to which, the presentation was, under the circumstances of the case, favourable, viz. the breech. Dr. Sinclair had hardly any doubt but that in cases of

very extreme deformity, the douche, provided it were applied with the hand, and the vagina was kept properly distended, would be found successful long before the sixth month. Dr. Sinclair also drew the attention of the Society to the new method of induction, as discovered by Dr. Scanzoni, consisting in the irritating the nerves of the mammary glands, and thereby inducing a degree of sympathy in those of the uterus, which, it is asserted, ends in uterine contraction. The means of producing this mammary irritation is by India-rubber sucking-pumps. Sometimes mammary inflammation was also the result of this irritation, and Dr. Sinclair considered this in itself enough to condemn the new method of operating, especially when we were possessed of such a harmless, rapid, simple, and certain means, as the most valuable and important discovery of the late Dr. Kiwisch von Rotterau.

Case in which Symptoms of Poisoning were produced by swallowing Laburnum Seeds. By Thomas H. Babington, M. B., &c., Coleraine.

October 6, 1853, I was hastily summoned, at nine o'clock, P. M., to visit Mrs. E., resident in Coleraine. I found her sitting very close to the fire, cold, shivering, her face pale and sunken, pulse very weak and exceedingly quick, and the whole surface of her body covered with a cold, clammy sweat. She had vomited very severely, and complained of a dry sensation in her throat, and of very acute griping pains over the whole abdomen. She had been three times purged within the last two hours.

She informed me that about four o'clock, P. M., she picked up two pods on her dressing-table, and in a thoughtless manner opened them and swallowed the seeds; that in less than ten minutes she was attacked with severe vomiting, and recognised the taste of some bitter and acrid substance in the matters ejected; that the vomiting continued for two hours without intermission, when her bowels became affected; that she last vomited about half an hour since.

On examining the pods I at once recognised them as those of the *Cytisus laburnum.*

I ordered her to bed; applied heat to the extremities; and administered brandy, ammonia, and laudanum, till reaction was established. Next morning I found her pretty well, but slight nausea and the severe griping pains in the abdomen continued for more than a week.

Rules for the Administration of Chloroform. By M. Robert, Surgeon to the Hôpital Beaujon.

1. Chloroform may cause death when it is mixed in too great proportion with air.

2. But it may also, in consequence of idiosyncrasy, produce serious accidents and death, even when it has been administered in trifling doses.

3. Asphyxia is not to be apprehended as a result of the employment of chloroform unless the method of inhalation adopted be defective, or the state of the respiration be not duly attended to.

4. Chloroform predisposes to syncope, and renders the latter, when it occurs, more serious.

5. In cases in which death takes place exceptionally, it occurs by syncope. The cessation of the action of the heart is sometimes so sudden, that it constitutes a true sideration.

6. Syncope may occur at the very commencement of the operation, and in that case seems to result from the shock given to the system by the operative act itself. It may appear immediately, or several hours after the operation.

7. Anæsthetics are all more or less poisons. Chloroform is the most dangerous, but it is also the most powerful. Ether is less formidable, but less energetic. A mixture of equal volumes of ether and chloroform appears to me to be the best anæsthetic; it produces insensibility quickly, and seems to excite less reaction than chloroform or ether.

8. Before having recourse to the employment of chloroform, its contra-indications, whether for rejecting anæsthesia, or for modifying its application, should be sought for.

9. When chloroform is administered, it is important to watch attentively the state both of the pulse and of the respiration.

10. The danger of chloroform being, in general, proportional to the concentration of its vapours, it would be useful to be able to regulate this; but, as the inhalation must be made with free access of air, this regulation is impossible. It is, therefore, expedient to begin with very small proportions, which may be gradually increased according to the effects produced.

11. The action of chloroform being progressive and successive, we obtain insensibility by continuing uninterruptedly the inhalation of moderate doses, without its being necessary to increase the latter.

12. Having obtained the state called anæsthetic tolerance, we may prolong the condition for a longer or shorter time, provided we intermit the inhalation.

13. When, for any reason, the patient has been obliged to consume a large quantity of chloroform, we must guard against consecutive attacks of syncope.

14. In cases of severe syncope or sideration, it will be advisable to have recourse to the following means:—

1. To expose the patient to a cool and pure atmosphere.

2. To give the body such a position that the head may be dependent.

3. To open the mouth and draw the tongue forward.

4. To practise artificial respiration by duly timed pressure (par des pressions cadencées) on the thorax and abdomen.

5. Excitement of the skin by frictions, rubefacients, &c., may be subsidiarily employed.—*Bulletin Général de Thérapeutique,* vol. ii., 1853, p. 545.

[The above deductions by M. Robert conclude a lengthened essay which was read by him before the Surgical Society of Paris. Although they do not contain much that is novel or important, we think them worth publishing, as an exposition of the views pretty generally adopted by the French surgeons as to the administration of chloroform.—ED.]

On Tone and Atony. By RUD. VIRCHOW.

THE subject of tone has latterly been so fully and variously discussed in reference to the condition of muscles, that it seems to me advisable to add a few explanatory remarks on the question in a pathological point of view. It was, moreover, the requirements of pathology which rendered the use of the terms tone and atony necessary. Etymologically we should by tone understand the medium state of tension, and if, according to the views of the present day, we refer this principally to contractile parts, misunderstanding might easily arise. Pathologists have at all times ascribed tone and atony to a greater number of parts than to muscles simply; they have likewise attributed these conditions to merely elastic parts, as ligaments, membranes, tendons, or simple areolar tissue. Tense and flaccid fibres were for a long time expressions nearly equivalent to tone and atony. If the word tone represents only the medium state of contraction, or the capacity of this condition, atony should signify incapacity thereof, and so be synonymous with paralysis, but this is by no means the case: an atonic part is not necessarily paralytic, although a paralytic part is usually atonic. Atony is simply weakness, when we speak of a contractile part, relaxation when applied to an elastic part. Both weakness and relaxation are often connected with a flabby, collapsed condition, while tone is accompanied by a certain turgid fulness, the *turgor vitalis.* Hence it follows, that these conditions also have been confounded. But turgescence chiefly depends on the condition of the local vascular apparatus, and on the quantity of blood present in the body: the mean state of tension of turgescence is principally dependent on the pressure of the blood, and on the quantity of blood within the vessels, and thus has so little to do directly with tone that it may actually increase through atony of the walls of the vessels. As therefore, in reference to tonicity, we neither speak principally of the circumstances of *contraction* nor of *pressure,* nothing remains but to consider the

conditions of *nutrition* of the parts, and in fact any other point of view can scarcely be regarded as valid. In suitable nutrition, in which a part is maintained regularly and uniformly in its internal composition, the internal attraction of its particles, its cohesion, and consequently its power of external resistance, must be the greatest; in lesions of nutrition, where its due admixture is interrupted by heterogeneous, wasted, or irregularly assimilated particles, its internal attraction will relax, its cohesion will diminish. The former is tone, the latter is atony. We thus speak of a *condition of tension of a part permanently caused by the attraction of its atoms depending on the state of its nutrition, and not transitorily proceeding from a special excitement or irritation.* In the muscles we can very well distinguish this nutritive tension (the tone) from the functional. A wearied muscle loses its tone although it can very easily be made to contract, and may continue in certain states of contraction. It is therefore incorrect to refer both properties to tone: it is only the power by which the contractions occur and continue that depends on nutrition, or, if we will, on tone; and since in many cases proportion depends mostly on this, it is easy to understand that the term tone has been too widely applied; but confusion may be easily avoided by recollecting that *every living and well-nourished part possesses tone.* Following Ed. Weber[a] we have been in the habit of referring many of the phenomena formerly attributed to tone simply to elasticity. Certain and indisputable though it now is, that elasticity is more perfect in muscles directly as they possess more tone, it would still lead to many mistakes were we simply to identify the two: as tone must be considered as the cause of the greater or less contractile power of a muscle, so elasticity likewise depends on it; but the latter is, as Pirogoff has very correctly observed, organic, that is, it varies with the conditions of life and nutrition, and does so indeed in very brief periods of time; indeed, it is very quickly altered by action. *The more the contractile power diminishes, the more the degree of elasticity is lowered.* This is easily explained when we consider that both have their common basis in tonicity.

The chief difficulty which attends these questions is in applying them to the muscular structure of vessels, on which subject I must refer to the forthcoming first volume of my Special Pathology and Therapeutics, page 99.—*Virchow's Archiv für Pathologische Anatomie und Physiologie und für Klinische Medicin*, bd. vi., heft 1. 1853. Page 139.

On the Occurrence of Sarcinæ in the Lungs. By PROFESSOR ZENKER, of Dresden.

IN dissecting the body of a woman, twenty-eight years of age, who had suffered from a cancerous tumour of the anterior wall of the abdomen, it was found that, in addition to the presence of isolated

[a] R. Wagner's Handwörterbuch der Physiol. III. 2. Art. Muskelbewegung.

cancerous nodules in the lungs, the lower lobes were in some parts devoid of air, but soft, while in other parts they contained air, and were infiltrated with a quantity of fluid; in the interspaces were scattered numerous undefined spots, of a distinct yellow colour, yielding on pressure a yellowish flaky fluid, in which a large quantity of sarcinæ were seen on microscopic examination, together with other vegetable products, large fat corpuscles, yellow particles of various forms, and amorphous masses of a yellow colour, probably from being tinged with the colouring matter of the bile. In the stomach was a radiated cicatrix; in its contents the same microscopic forms were found as in the lower lobes of the lungs, but the sarcinæ were here much more abundant. The author supposes, from the similarity of the appearances, that the sarcinæ proceeded from the stomach, and that they had been brought up in the last moments of life by regurgitation, and driven by strong inspiration into the minutest ramifications of the bronchial tubes; the depth at which they were found (in the lower lobes) prevented the author from assuming that they got there after death, as, for example, while the body was being carried. In his opinion the present case differs from that described by Virchow in this respect, that in the latter it was more probable the germs of the sarcinæ were conveyed directly from without into the gangrenous portion of the lung, where the sarcinæ were, and that they did not reach that part accidentally from the stomach. Virchow's case thus showed that sarcinæ may, under certain circumstances, be propagated in the lungs.—*Vierteljahrschrift für die praktische Heilkunde*, 1853. Band iv. Analekten, p. 51.

On Acute Peritonitis in Children at the Breast. By Dr. Isidore Henriette, Physician to the Foundling Hospital at Brussels.

The frequent occurrence of affections of the serous system in infants at the breast must strike the physician who makes the diseases of children the principal subject of his observation and practice. The peritoneum, the pericardium, the pleura, the membranes of the brain, present in turn, and more frequently than is generally supposed, pathological changes which bear witness to a special tendency in these exhalent tissues to become affected in children at the earliest age. In stating that the diagnosis of these diseases, with the exception of meningitis, the symptoms of which are most frequently sufficiently evident, is obscure, I do not mean to assert that inflammation of the peritoneum, pleura, or pericardium, is only recognisable after death, or that the functional disturbances, to which peritonitis in particular gives rise, are beyond our recognition; still their recognition requires close attention on the part of the physician. I shall, therefore, endeavour to remove the latter disease from the obscurity which surrounds it, both by collecting and arranging the materials for its diagnosis, which are to be found scattered in

the observations of writers on the subject, and by describing the results of my own experience. I shall finally point out the characters which distinguish it from entero-colitis, a disease which, it is well known, is very frequent in children at the breast, and with which peritonitis may most easily be confounded, as occurred in the child who was the subject of the first observation I shall presently report.

In the first place, if we endeavour to ascertain the cause of idiopathic peritonitis in young children, we are soon at a loss, and it is not one of the least singular features of this affection that it appears with unexpected suddenness. It is well known that in the adult, spontaneous peritonitis is rarely observed, and that it is ordinarily met with only in connexion with the puerperal state, traumatic lesions, perforations of the digestive tube, &c. Its etiology is, therefore, most uncertain; and I shall just now show that in the two cases in infants which I had under my care in the hospital, it was impossible to trace them to a cause which did not leave too much room for suppositions and hypotheses, and that in particular there was no trace of erysipelas or inflammation observable about the umbilical cicatrix. This it is important to note. A coincidence between my two cases and those observed by Bouchut (I do not think it was anything else) appears to me, however, worth pointing out: the one instance that of an infant at the breast, suffering from syphilis, and submitted to the mercurial treatment, as in my first case; the other that of a child affected with an erratic erysipelas, as in my second case. Are we to see in this analogy anything but a coincidence, an accidental occurrence? Although such language is scarcely scientific, and may be at variance with certain opinions, I am strongly inclined to believe that it is correct.' Doubtless, it would be very important to ascertain the cause of a disease so rapidly fatal, because we might then be able to remove children from the influences which give rise to it; but that is not the question which I wish to elucidate: my principal object is, to enumerate the symptoms I have noted, with a view to obtaining a positive diagnosis, to establish the signs, hitherto, in spite of modern labours, imperfect, of an affection which, as I have just said, is, nevertheless, frequent. In the adult the symptoms of acute peritonitis are most characteristic; it is difficult to mistake them; they are so clear that, except with such inexperience as can only occur in the merest tyro, it is almost impossible not to make an accurate diagnosis. Does the same hold good in children at the breast? No. Here there is no information to be derived from the patient; nor does the disease reveal itself to our senses, as in the adult, in a contracted countenance, and a small, compressed, and peritoneal pulse; there is, indeed, pain on pressure, and tumefaction of the abdomen; but these two morbid manifestations belong equally to diseases of the intestinal tube, and it is, nevertheless, on their existence that the diagnosis is, in great part, founded. It is, then, quite necessary to define, accurately, the conditions of their presence or absence, their intensity and progress in the peritonitis of nurs-

lings, in order to distinguish the latter affection from acute gastro-colitis.

Peritonitis in children commences suddenly; we do not know whether it is, as in adults, preceded by rigors; but this we know, that, threatening in its first appearance, it is not preceded by any premonitory symptoms. The children I have had an opportunity of observing enjoyed a comparatively satisfactory state of health up to the moment in which the peritonitis set in. They had not previously presented anything unusual. Entero-colitis begins less abruptly; the infants refuse the breast, or take it with indifference some days before the appearance of the disease, intestinal gurglings supervene, and the alvine discharges become disordered.

IN PERITONITIS.	IN ENTERO-COLITIS.
Tenderness of the belly is excessive, as it is in any disease of the abdominal organs; the infant screams out on the least pressure.	The abdominal sensibility is less acute; a certain amount of pressure may even be exercised without producing cries.
Swelling of the abdomen occurs with great rapidity; the belly becomes inflated, so to speak, under our eyes, from the very commencement of the peritoneal inflammation, at the same time that dulness sets in over the lower or pubic part.	The tumefaction of the abdomen takes place less rapidly, and almost always in the ratio of the intensity of the intestinal inflammation.
Vomiting is rare, and takes place only at the commencement; the vomited matters are unmixed, perfectly green, and stain the linen on which they are discharged.	Vomiting is more frequent, and more continued; the matters ejected are almost always mixed, and are of a yellowish-green colour.
Constipation is a symptom which I have observed in the two cases I have noted.	Diarrhœa is almost constantly present, or at least the motions are curdled, greenish, and heterogeneous.
The face scarcely changes; the eyes are more than usually fixed; and the children preserve their plumpness.	The face rapidly becomes wan, the eyes and mouth are encircled with blue, emaciation progresses quickly.
The little patients remain almost motionless, and cry when they are stirred.	The children frequently draw up their legs over the abdomen.
Respiration is perfectly thoracic, and very much hurried; the inspiratory movements are incomplete and limited, as described by Bouchut.	The same symptoms are produced, but with much less intensity. The diaphragm does not remain, as in peritonitis, motionless and passive.

Such are the most prominent symptoms I have observed. They are at variance with some of those described by Billard, almost the only physician who has paid special attention to peritonitis in children at the breast, and who has given a description of it at all approaching to completeness, as, for example, the distortion of the features, and the nature of the matters vomited.

To some it may, perhaps, appear strange that I have not noted the signs furnished by an examination of the general symptoms, and of the pulse in particular. I have omitted doing so because these phenomena have not differed from those presented by any ordinary pyrexial affection. I shall say nothing of the treatment of this formidable malady, except that I have derived so little advantage from the employment of antiphlogistics and emollients that I intend, when I next have occasion to treat peritonitis in young infants, to combine a mercurial treatment with the antiphlogistic, following in this respect the practice and the experience acquired in the case of adults. I am far, however, from being sanguine as to the final result of this combined plan, for death ensues so rapidly that I can scarcely conceive of therapeutic agents having time to take effect.—*Archives de la Médecine Belge*, August, 1853. Page 102.

[There is no reason to question the accuracy of the diagnosis in the cases M. Henriette has described, but he appears to have seen only two, while M. Thore has reported fifty-nine, two-thirds of which occurred when the children were only ten days old. The greater number were observed in large foundling hospitals which were visited by erysipelas infantum. The appearance of the disease in so many instances, at such a very early age, is worthy of note; and it has been remarked by Dr. West, that as the child grows older, the mucous membrane becomes more liable than the peritoneum to be affected. Dr. West has also given some cases in which the disease was dependent on a syphilitic taint.—ED.]

Case of Cysticercus Cellulosæ in the Brain, causing Death. Communicated by PROFESSOR P. E. GELLERSTEDT.

KERSTIN ROSENQUIST, forty-seven years of age, married, from childhood enjoyed tolerably good general health, but has been in hospital for various syphilitic affections: on the 3rd January, 1852, she sickened, having for some days previously suffered from want of appetite, with slight rigors, followed by flushes of heat, violent pain and heat in the head, great languor, and mist before the eyes when in the upright position. On the day above mentioned she took to bed; and loathing, a sense of oppression of the chest, constipation, and vigilance, alternating with sleep disturbed with uneasy dreams, quickly supervened. After the lapse of seven or eight days violent vomiting set in, occurring several times in the twenty-four hours, both after eating and when the stomach was empty, with a discharge, at one time, of food more or less altered, at another, of bile. On the 17th January the menses, which had been six weeks absent,

reappeared. On admission into hospital on the 19th January, the patient complained particularly of a severe pain in the head, chiefly over the forehead, with great debility; there was some intolerance of light, and an expression of extreme suffering; the eyes were slightly injected; the pupils were somewhat contracted, but obeyed the stimulus of light; there was neither remarkable redness of the face, nor any considerable heat in the head or in the surface of the rest of the body; the bowels had not acted for several days, and the vomiting, as above described, continued; the tongue was soft and flabby, furred towards the root; the pulse was 90, small and weak, but uniform. The heart's impulse was tolerably strong, but its volume could not be considered as increased, although a decidedly double sound, accompanying the systole, was heard over the entire of the organ, and especially over its left half. After the employment of cupping to the nape of the neck, and the use of purgative medicine, followed by a mixture containing sulphate of magnesia, the headach and vomiting diminished; the latter ceasing altogether on the 23rd January, but the former was not wholly removed until the 3rd of February. The patient, who seemed to have taken a great quantity of mercury at various times for syphilis, experienced mercurial action after a dose of ten grains of calomel with an equal quantity of jalap, which, although slight, continued to the last-named date.

She was, at her own request, discharged on the 13th of February, but on the 26th applied for readmission for the same symptoms as before, with the addition of a peculiar delirium during the night, so that, while in the daytime she spoke and answered correctly, although after long consideration, often exhibiting a want of comprehension and judgment, by night she got out of bed, went into the corridor and other wards, without any definite object, and without being able to account for her wandering. After four or five weeks' treatment with aperient medicines, followed by small doses of iodide of potassium, she again improved, and by her own desire left the hospital in the beginning of April, and remained at home during the entire summer.

The headach and other symptoms seem, however, to have soon returned, and the patient by degrees sank into a state of imbecility; she was therefore taken in again in October, and it was found on her admission that her senses were now completely blunted, so that she lay almost constantly silent and motionless in bed; it was only with the greatest difficulty that she could be induced to answer when spoken to, and then she did so extremely slowly, and apparently after long consideration; her answers to the simplest questions were scarcely intelligible, and often consisted of nothing but an indistinct muttering. Her countenance was expressive of suffering and of some degree of anger; there was no congestion either of the face or eyes; the pupils were particularly sluggish, but equally so on both sides, and were rather contracted than otherwise; her former dulness of hearing now amounted almost to deaf-

ness. She complained of nothing except occasionally of hunger; had no longer vomiting, but was obstinately constipated. She now began to pass urine under her, but never had retention. Her gait, which from the time of her admission on the 26th February had been unsteady, was now extremely faltering; and her muscular weakness was so great that at last she could not at all stand upright; yet no proper paralysis existed, still less any contraction or convulsive movement. She became by degrees excessively emaciated; her skin was of a yellowish-gray colour, resembling parchment, but there was no tendency to the formation of bed-sores. She died on the 25th November.

On dissection the brain was found to be large, jutting out over the edges of the skull when opened; the convolutions were flattened, so much so that they were nearly obliterated; the entire surface of the organ was particularly pale and bloodless, and in it was found, as well quite superficially in or under the pia mater as somewhat more deeply situated in the cortical substance, a number of round vesicles as clear as water, of the size of small hazel-nuts. These vesicles could with the handle of the scalpel be easily turned out of the little cavity they formed for themselves, the walls of which, composed entirely of the cerebral mass, were in some instances not at all, in others only in their most superficial layer, and seldom deeper, softened, but in all cases without any further change of colour than the general paleness described. The vesicles were found tolerably equally scattered singly throughout the whole cortical substance, with from one or two to four lines interspace, but only two in the left hemisphere, and one in the right, were found quite in the white medullary substance. Vesicles of the same description were also found in both thalami and corpora striata, especially in and on their upper surface, and in this situation they were so closely conglomerated that between most of them scarcely an interval existed; the substance of the brain, also, was more softened here than in the other parts. The under surface of the brain was found to be in the same condition as the upper and lateral surfaces of the hemispheres. Similar vesicles, but less numerous than those in the cerebrum, were likewise found in the cerebellum, and were also situated close to the surface. The lateral ventricles contained but one or two tea-spoonfuls of a fluid as clear as water, but the septum and fornix were considerably softened. Immediately at the sella turcica was a vesicle similar to those described above, firmly attached to the dura mater itself. On closer examination, a pearl-white round body, as large as a hempseed, and more or less closely attached to the wall of the vesicle, was found floating in a clear watery fluid in each of these vesicles. When magnified twenty-five times, this was seen to be a *cysticercus cellulosæ*, characterized by its transversely folded body, covered with numberless small plates, its four nipples, and its double circlet of hooks; the latter, however, not distinctly seen until the body was magnified fifty times. Besides those in the brain, four or five such cysti-

cerci were found on the surface of the right lung, exactly where its three lobes meet in the pleura pulmonalis, which latter was in this situation somewhat thickened, and covered to an extent equal to that of the palm of the hand with granulations of the size of grains of sand[a]. A single cysticercus was situated on the endocardium in the left ventricle, close to the aortic orifice; one was found in the duodenum, adherent to the mucous membrane, and several in both kidneys: besides these, an infinite number existed in all the muscles of the body.

On the first occasion of the patient's admission into hospital, the severe headach, the intolerance of light, the anxiety, the want of sleep, the heat in the head, and especially the violent and persistent vomiting and constipation, indicated a considerable degree of hyperemia and irritation of the brain; but at the same time the symptoms were too severe to be referred simply to the congestion of that organ, which might possibly be produced by the increased action of the heart; while the absence of all delirium on the one hand, and of all lesion of motion on the other, made a definite diagnosis so difficult that I considered we were not justified in describing the disease more closely than as a *cephalalgia sanguinea*, notwithstanding the reason there might be to look upon the affection as a meningitis. When, however, the patient returned so soon after her first dismissal, and the peculiar delirium with the other lesions of intelligence were added to her former symptoms, it became evident that the morbid process was of a more permanent nature, and that it involved more of material alteration, and had its seat in and affected the surface and the gray substance of the brain; in addition to which, the absence of all proper paralysis, convulsion, or contraction, showed the relative integrity of the medullary, white, movement-controlling substance. I still felt, however, that we could not accurately define the special character of the morbid process; although consequences of the past attacks of syphilis, the presence of some other swelling proceeding from the dura mater, or an actual hydrocephalus internus, were the conjectures most adhered to until death at last solved the question. Of the appearances on dissection, the presence of the cysticercus on the endocardium, and perhaps still more on the intestinal mucous membrane, was remarkable.—*Hygiea*, March, 1853, p. 145.

[a] Were these tubercles or cysticerci in the first stage of development?—Ed.